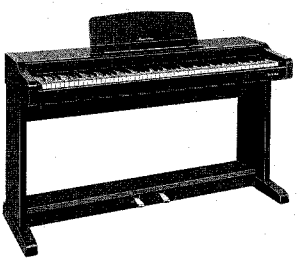
ORDER NO. EMID941564
A4

# Service Manual

PCM Digital Piano

# SX-PX201/201M

(M), (MC), (XM), (EN), (EH), (EF), (EZ), (EW), (EA), (EP), (EK), (XL), (XR), (XS), (XD), (X), (XT)



**AREAS**

(M): U.S.A.
(MC): Canada
(XM): Mexico
(EN): Norway, Sweden, Denmark, Finland
(EH): Holland, Belgium
(EF): France, Italy
(EZ): Germany
(EW): Switzerland
(EA): Austria
(EP): Spain,Portugal
(EK): the United Kingdom
(XL): New Zealand
(XR): Australia
(XS): Malaysia, Singapore
(XD): Saudi Arabia
(X): Hong Kong, the Philippines, Thailand
(XT): Taiwan

**⚠ WARNING**

This service information is designed for experienced repair technicians only and is not designed for use by the general public. It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product. Products powered by electricity should be serviced or repaired only by experienced professional technicians. Any attempt to service or repair the product or products dealt with in this service information by anyone else could result in serious injury or death.

## ■ Specifications

| | |
|---|---|
| KEYBOARD | 88 KEYS (MAX. POLYPHONIC 32 NOTES) |
| SOUNDS | GRAND PIANO, UPRIGHT PIANO, E PIANO 1, E PIANO 2, HARPSI, PIPE ORGAN |
| PEDAL | SOFT/SOSTENUTO, SUSTAIN |
| DIGITAL CELESTE | ○ |
| DIGITAL REVERB | ○ (ROOM, STAGE, HALL) |
| TOUCH SENSITIVITY | LIGHT, NORMAL, HEAVY |
| TRANSPOSE | G–C–F# |
| TUNING | 427.3–440.0–453.0 Hz |
| DEMO | ○ |
| MIDI | MULTI TIMBRE, LOCAL CONTROL, OMNI ON, PROGRAM CHANGE, TRANSPOSE |
| MODE SET | PIANO TUNING, MINIMUM RANGE, SOSTENUTO |
| OTHERS | POWER SWITCH, MAIN VOLUME, MIDI TERMINALS (IN, OUT, THRU), PEDAL IN, AUX IN (R/R+L, L), LINE OUT (R/R+L, L), PHONES ×2, AC IN, INITIAL KEY |
| OUTPUT | 20W × 2 |
| SPEAKERS | 14 cm × 2 |
| POWER REQUIREMENT | 145 W, 90 W (NORTH AMERICA AND MEXICO)<br>AC 120/220/240 V 50/60 Hz<br>AC 120 V 60Hz (NORTH AMERICA AND MEXICO)<br>AC 230 V 50/60Hz (NEW ZEALAND AND EUROPE EXCEPT FOR UNITED KINGDOM)<br>AC 230-240 V 50/60Hz (UNITED KINGDOM) |

Technics

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| | |
|---|---|
| DIMENTIONS (W × H × D) | 137.3 cm × 97.3 cm × 45.3 cm (54-1/16" × 38-5/16" × 17-27/32") |
| NET WEIGHT | 44 Kg (97.0 lbs) |
| ACCESSORIES | MUSIC STAND, AC CORD, STAND |

*Specifications are subject to change without notice for further improvement.

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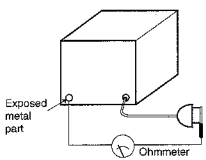
# SAFETY PRECAUTION

## ● Safety Precaution

1. Before servicing, unplug the power cord to prevent an electric shock.
2. When replacing parts, use only the manufacturer's recommended components for safety.
3. Check the condition of the power cord. Replace if wear or damage is evident.
4. After servicing, be sure to restore the lead dress, insulation barriers, insulation papers, shields, etc..
5. Before returning the serviced equipment to the customer, be sure to make the following insulation resistance test to prevent the customer from being exposed to a shock hazard.

## ● Insulation Resistance Test

1. Unplug the power cord and short the prongs of the plug with a jumper wire.
2. Turn on the power switch.
3. Measure the resistance value with an ohmmeter between the jumpered AC plug and each exposed metal cabinet part, such as screw heads, connectors, control shafts, handle brackets, etc..Measurements should range from 4 MΩ to infinity for all exposed parts.

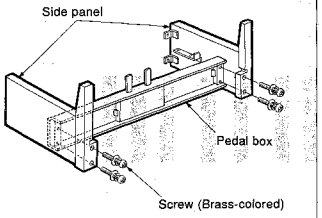



Resistance = 4MΩ to ∞

# HOW TO ASSEMBLE THE PIANO

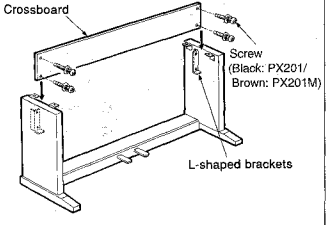
To prevent the piano unit from falling off the stand, secure it firmly with the screws.

1 Assemble the side panels and the pedal box with the 4 brass-colored screws.



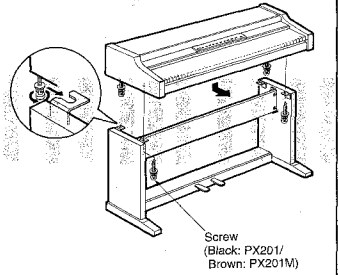

[Fig. 1]

2 Place the stand upright. Secure the crossboard to the front of the L-shaped brackets with 4 screws.



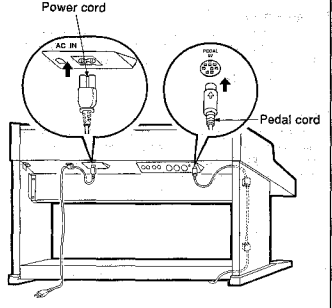

[Fig. 2]

3 Place the piano unit on the stand and secure it to the stand.




[Fig. 3]

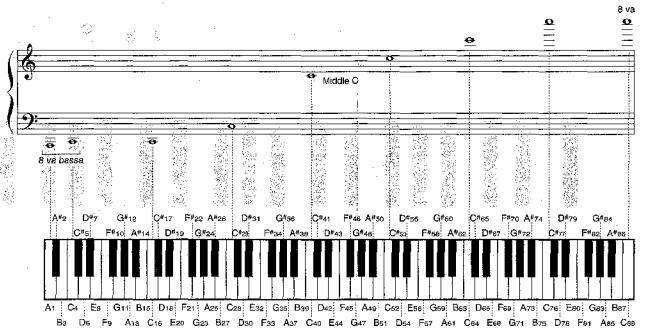
4 Connect the pedal cord and power cord to their sockets located rear of the piano unit as shown below.




[Fig. 4]



# KEYBOARD RANGES



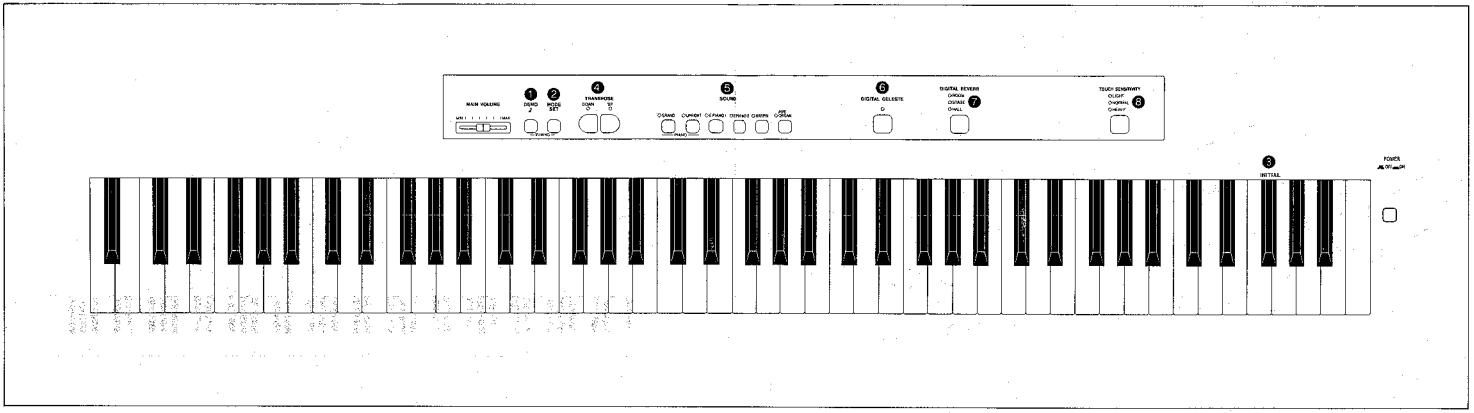

# INITIAL SETTING

The initial setting function is used to return to the original factory settings, and to reset the customer settings and misoperations. The selected sound and various functions, MIDI settings are initialized with this operation.

■ **INITIAL SETTING**
Press the **INITIAL** key while the **MODE SET** button is pressed. Or turn on the **POWER** switch while pressing the **INITIAL** key.

1. While pressing the **MODE SET** button.
2. Press the **INITIAL** key.

# ARRANGEMENT OF CONTROL PANEL



# BASIC FUNCTIONS

**❶ DEMO**
Automatic demonstration performances stored in the piano's memory introduce the various sounds available. Listen to all the demonstration tunes in order, or listen to the demo tune of a specific sound.

**❷ MODE SET, ❸ INITIAL KEY**
Used when selecting functions to set or adjust, including type of piano tuning, minimum range (volume), sostenuto, initialization, plus all settable MIDI functions.

•If the INITIAL KEY is pressed while the **MODE SET** button is depressed, the settings of the buttons, etc. will return to the initialized settings made by the manufacturer.

**❹ TRANSPOSE**
C is the standard setting, but you can raise or lower the key of the entire instrument within a one-octave range with these two buttons. The buttons are also used for adjusting the volume balance of mixed sounds.

**❺ SOUND**
Select from 6 different sounds for the piano. You can mix sounds by selecting two simultaneously. All sounds feature Touch Response.

**❻ DIGITAL CELESTE**
Apply a celeste effect to give the sound greater depth. The setting is memorized independently for each sound.

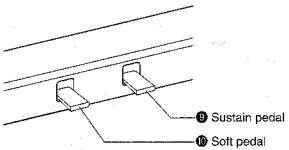
**❼ DIGITAL REVERB**
Add a reverb effect to the sound. Choose one of three different echo types. The setting is memorized independently for each sound.

**❽ TOUCH SENSITIVITY**
Choose **LIGHT**, **NORMAL** or **HEAVY** keyboard touch (Touch Response) to match your type of playing



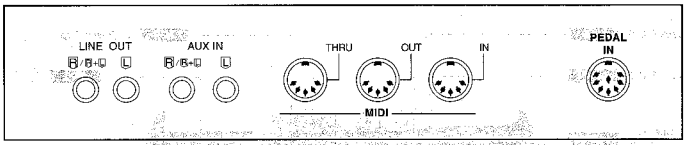
**❾ Sustain Pedal**
The sound is sustained when a key is released while this pedal is depressed. For **GRAND PIANO** and **UPRIGHT PIANO** sounds, the tones of the 17 rightmost keys are automatically sustained.

**❿ Soft pedal**
Press the pedal for softer, muted sound. It can also be used as a sostenuto pedal. When used as a sostenuto pedal, and **PIPE ORGAN** is selected, the tones continue to sound for as long as the pedal is depressed.



# TERMINALS

**(on the rear panel)**




**LINE OUT** (output level 1.5 Vrms, 600 Ω)
By plugging into an external high-power amplifier, the sound can be reproduced at a high volume. Or connect a tape recorder and use them as recording terminals. To output monaural sound, connect the external equipment to the **R/R+L** terminal. (Do not connect the **L** terminal. )

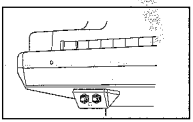
**AUX IN** (input level 0.5 Vrms, 6 kΩ)
Other instruments such as a rhythm machine or sound module can be connected to the piano so that the sound is output from the piano. To receive monaural sound, connect the other instruments to the **R/R+L** terminal. (Do not connect the **L** terminal. )

**MIDI (Musical Instrument Digital Interface)**
MIDI is the standard specification that enables connection to equipment such as synthesizers and personal computers.

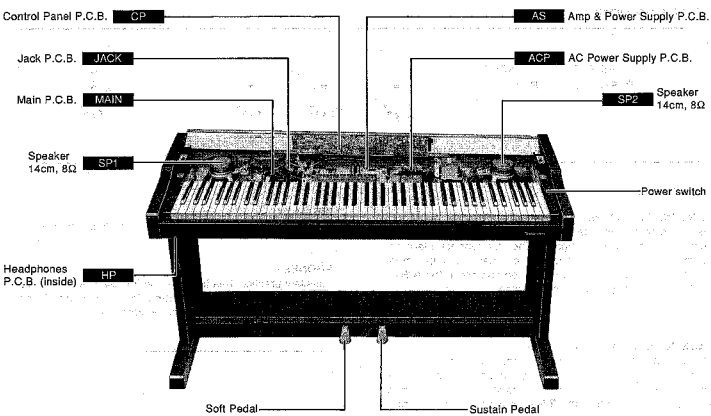
**IN :** The terminal that receives data from external equipment.
**OUT :** The terminal that transmits data from this instrument to external equipment.
**THRU:** The terminal that transfers data from the **IN** terminal directly to other equipment.
• Use a 5-pin DIN cord (less than 15 m long) for these connections.

**PEDAL IN**
Connect the cord from the included stand to this terminal.

**PHONES** ( ∩ ) ×2
For silent practice, headphones may be used. When plugged in, the speaker system is automatically switched off, and sound is heard only through the headphones.



# PARTS LOCATION

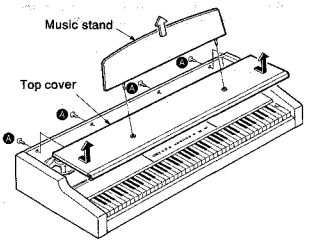



[Photo-1]

# DISASSEMBLY INSTRUCTIONS

## 1 Removing the top cover

1. Remove the music stand.
2. Remove the top cover holding screws (Ⓐ 4 pcs.).
3. Slide the top cover forward and lift up.



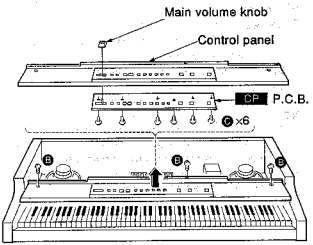

[Fig.5]

## 2 Removing the control panel

1. Remove the top cover (see Step 1).
2. Remove the control panel holding screws (Ⓑ 3 pcs.).
3. Remove the control panel as shown in Fig. 6.

## 3 Removing the CP P.C.B.

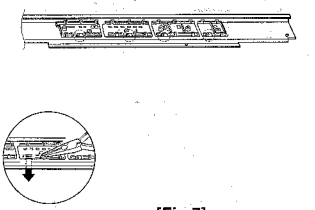
1. Remove the control panel (see Step 2).
2. Remove the main volume knob.
3. Remove the CP P.C.B. mounting screws (Ⓒ 6 pcs.).




[Fig.6]

## 4 Removing the control panel ornament

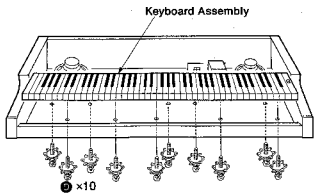
1. Remove the control panel (see Step 2).
2. Remove the CP P.C.B. (see Step 3).
3. Release the control panel ornament holding claws.



[Fig.7]

## 5 Removing the keyboard assembly

1. Remove the control panel (see Step 2).
2. Remove the keyboard assembly holding screws located on the bottom of the cabinet (B 10 pcs.).




[Fig.8]

## 6 Keys (s)

### Disassembly

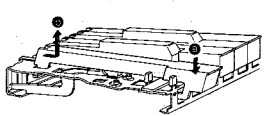
1. Remove the keyboard assembly (see Step 5).
2. To release the key claw.
   A Press the front of the key downward slightly.
   B Press the rear of the key forward gently.
3. To remove the key, lift as shown in Fig. 9.

**NOTE:**

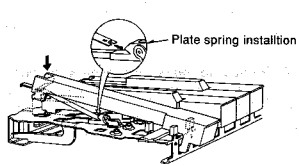
- The key claw is easily broken. Do not apply undue force. Should a key claw break, it can still be used; however, a replacement is recommended.
- If a black key is to be replaced it is necessary to remove both adjacent white keys.

### Assembly

1. Insert the front part of the key into the chassis.
2. Insert the plate spring into the hammer notch as shown in Fig. 10.
3. While slowly lowering the key into the chassis, insert the plate spring into the notch at the rear of the key.
4. Carefully insert the key into the opening in the chassis and slide the key towards the rear to lock it in place.




[Fig.9]




[Fig.10]

## 7 Removing the printed circuit boards

•Remove the top cover (see Step 1).

**MAIN P.C.B.**

1. Remove the MAIN P.C.B. mounting screws (B 2 pcs.).
2. Release the claws of the P.C.B. holders.

**AS P.C.B.**

1. Remove the AS P.C.B. mounting screws (F 2 pcs.).
2. Release the claws of the P.C.B. holder.

**JACK P.C.B.**

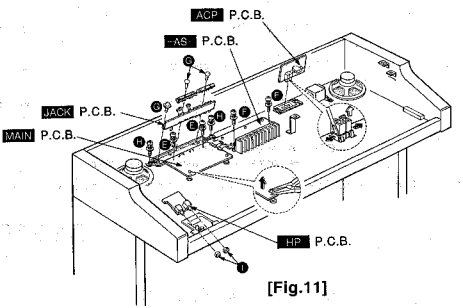
1. Remove the JACK P.C.B. mounting screws (G 3 pcs.).
2. Remove the jack panel mounting screws (E 2 pcs.).

**HP P.C.B.**

1. Remove the keyboard assembly (see Step 5).
2. Remove the headphone jack mounting nuts (I 2 pcs.).

**ACP P.C.B.**

· Release the claws of the AC IN connector bracket.




[Fig.11]

# SYMPTOMS WHICH APPEAR TO BE SIGNS OF TROUBLE

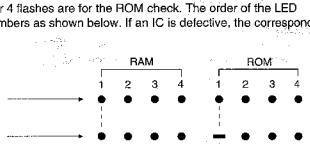
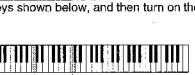
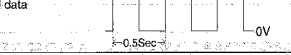
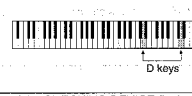
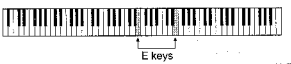
| Phenomenon | Remedy |
|---|---|
| No sound is produced when the keyboard is played. | •No sound is produced if the **MAIN VOLUME** is set to **MIN.** Use the sliding control to set the volume to an appropriate level.<br>•If the MIDI LOCAL CONTROL is set to off, set it to on. |

**■About the back-up memory**

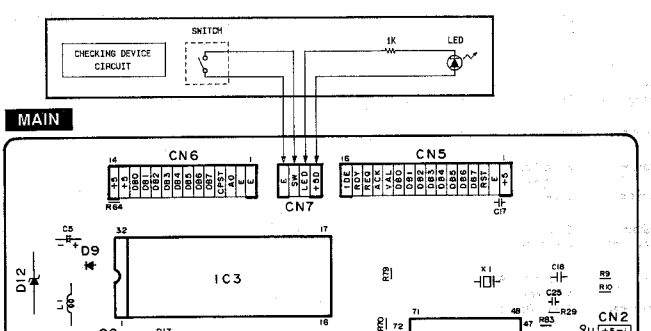
The selected sound and various functions, and MIDI settings remain in the memory for about 30 minutes after the **POWER** is turned off. If you wish to return all memories and settings to their factory preset status, while pressing the **MODE SET** button, press the **INITIAL** key on the keyboard. Or, press the **POWER** on and hold the **INITIAL** key at the same time.

# ABOUT THE SELF-DIAGNOSTIC FUNCTION

This model has some self-diagnostic capabilities. When set to the self-diagnostic mode, operation of various components can be verified by following the procedures in the chart below.

| No. | PCB | TEST MODE | Procedure |
|---|---|---|---|
| 1 | MAIN | RAM (IC4), ROM (IC3) check | 1. Connect the CHECKING DEVICE (refer to page I-12) to CN 7 on the MAIN P.C.B., and turn on the CHECKING DEVICE switch.<br>2. Turn on the power switch. |
| | | When the power switch is turned on, the LED of the CHECKING DEVICE flashes 8 times. The first 4 flashes are for the RAM check, and the latter 4 flashes are for the ROM check. The order of the LED flashes corresponds to the respective IC numbers as shown below. If an IC is defective, the corresponding flash time is longer.<br>Examples<br>1. RAM OK, ROM OK<br>2. RAM OK, ROM (IC3) defective<br>3. RAM (IC7) defective, ROM OK<br>NOTE : ● indicates short flash time = OK<br>▬ indicates long flash time = Defective |  |
| 2 | MAIN | V53 Gate Array (IC2) check | Press and hold the two C keys shown below, and then turn on the power switch.<br> |
| | | Monitor pins 46-48 (DL6-DL4) of IC2 on an oscilloscope, and check whether incremental data (see figure) is output. |  |
| 3 | CP | Gate array (IC1) check | 1. Connect the CHECKING DEVICE to CN 7 on the MAIN P.C.B. (The Checking Device switch should be off).<br>2. Press and hold the two D keys shown below, and then turn on the power switch.<br>  |
| | | When the power switch is turned on, the LED of the CHECKING DEVICE flashes 4 times. The order of the LED flashes corresponds to the CPU (IC) on the respective P.C.B..s as shown below. If an IC is defective, the corresponding flash time is longer.<br>1. IC1 OK<br>2. IC1 defective<br>NOTE : ● indicates short flash time = OK<br>▬ indicates long flash time = Defective | |

| No. | PCB | TEST MODE | Procedure |
|---|---|---|---|
| 4 | MAIN | Wave ROM (IC7) check | 1. Press and hold the two E keys shown below, and then turn on the power switch.<br>2. Select the GRAND PIANO sound.<br>  <br> |
| | | When set to the self-diagnostic mode, the Wave ROM outputs a sine wave. If no sound is produced, or if the sound is distorted, the Wave ROM is defective. | |
| 5 | CP | Control Panel LED check | Press and hold the two F keys shown below, and then turn on the power switch.<br> <br> |
| | | Press the buttons on the control panel and confirm that the corresponding LEDs light. | |
| 6 | MKB | Keyboard ROM (IC2) check | Press and hold the two B keys shown below, and then turn on the power switch.<br> <br> |
| | | If the keyboard ROM (IC2) is OK, one confirming beep will sound. If it is defective, several consecutive error beeps will sound. | |

## ■ Connection between serving CHECKING DEVICE and MAIN P.C.B.



# MIDI IMPLEMENTATION CHART

| Function | | Transmitted | Recognized | Remarks |
|---|---|---|---|---|
| **Basic** | Default | 1–16 | 1–16 | memorized |
| **Channel** | Changed | 1–16 | 1–16 | |
| **Mode** | Default | 3 | 1, 3 | memorized |
| | Messages | × | × | |
| | Altered | — | — | |
| **Note** | | *21–108 | 0–127 | |
| **Number** | True voice | — | *0–127 | |
| **Velocity** | Note ON | ○ | ○ | |
| | Note OFF | × (9nH: V=0) | × | |
| **After** | Key's | × | × | |
| **Touch** | Ch's | × | × | |
| **Pitch Bender** | | × | × | |
| **Control Change** | 7 | × | **○ | volume |
| | 64 | ○ | ○ | sustain pedal |
| | 66 | ○ | ○ | sostenuto pedal |
| | 67 | ○ | ○ | soft pedal |
| | 93 | ○ | ○ | chorus (digital celeste) |
| **Prog** | | ○× | ○× | |
| **Change** | True # | 0–127 | 0–5 | |
| **System Exclusive** | | × | × | |
| **System** | Song Pos | × | × | |
| | Song Sel | × | × | |
| **Common** | Tune | × | × | |
| **System** | Clock | × | × | |
| **Real Time** | Commands | × | × | |
| **Aux** | Local ON/OFF | × | × | |
| | All Notes OFF | × | ○ | |
| **Messages** | Active Sense | ○ | ○ | |
| | Reset | × | × | |
| **Notes** | | ○× .....Whether or not the data for each of these items is transmitted or received can be set.<br>* Changes depending on the **TRANSPOSE** setting.<br>** Effective only in the MULTI TIMBRE mode. | | |

**Mode 1:** OMNI ON, POLY **Mode 2:** OMNI ON, MONO ○ : Yes
**Mode 3:** OMNI OFF, POLY **Mode 4:** OMNI OFF, MONO × : No

# PRECAUTIONS BEFORE SERVICING

## ■ Precautions for measuring of the output waveforms.

1. The waveform was measured with a "National Digital Storage Oscilloscope VP-5730A". Therefore the waveforms of musical tone signals shown may differ somewhat due to the difference in the timing of triggering.
2. Since the 1/10 test probe is used, the indicated voltage value on the bottom part of each waveform photo is 1/10 of the actual value (e.g. 0.2 V/cm should be 2.0 V/cm).
3. To measure the waveforms, first set this unit to the self-diagnostic mode (refer to page I-12, No. 4). The Wave ROM output will then be output as a sine wave to facilitate the servicing check.

## ■ Important safety notice:

Components identified by a ⚠ mark have special characteristics impotant for safety.
When replacing any of these components, use only manufacture's specified parts.

## ■ Symbolic Marks

The symbolic marks for resistors and capacitors which used in this circuits are classified as following TABLE-1 and TABLE-2.

1. RESISTORS
   - Resistors without symbolic mark are FIXED CARBON FILM RESISTORS (ERD-type).
   - All resistors are 1/4 WATT, ±5 % TOLERANCE unless otherwise designated in schematic diagrams.

(TABLE-1)

| SYMBOL | SPECIFICATION | SYMBOL | SPECIFICATION |
|---|---|---|---|
| Ⓕ | Fixed Carbon Film Resistors "FLAME-PROOF" (ERD—F—type) | Ⓕ | Fixed Metal Film Resistors "FLAME-PROOF" (ERX—type) |
| Ⓕ | Fixed Wire Wound Resistors "FLAME-PROOF" (ERF—type) | [F] | Fuse Type Fixed Metal Oxide Film Resistors "FLAME-PROOF" (ERQ—type) |
| Ⓕ | Fixed Metal Oxide Film Resistors "FLAME-PROOF" (ERG—type) | [F] | Fuse Type Fixed Carbon File Resistors "FLAME-PROOF" (ERD2FC—type) |
| Ⓖ | Fixed Metal Film Resistors (Precision and High Stability) (ERO—type) | | |

2. CAPACITORS
   - Capacitors without symbolic mark are POLYESTER CAPACITORS. (ECQM-type, ECQG-type, ±10 % Tolerance)
   - Polarized capacitors without symbolic mark are Aluminum Electrolytic Capapcitors. (ECEA-type, ±20 % Tolerance)

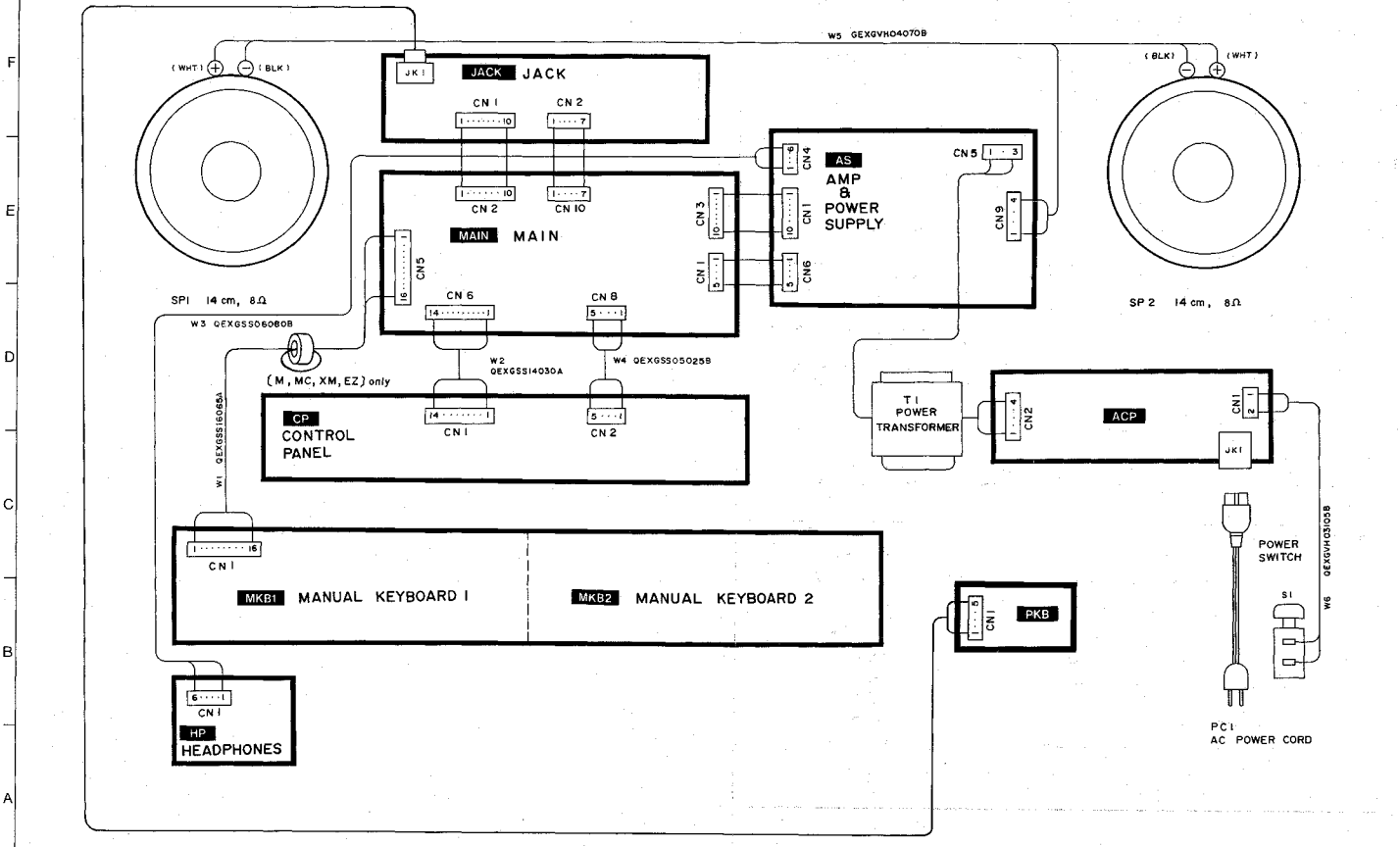
(TABLE-2)

| SYMBOL | SPECIFICATION | TYPE |
|---|---|---|
| Ⓝ | Non-Polarized Electrolytic Capacitors | ECEA_KN_type |
| Ⓨ | Non-Polarized Electrolytic (for Network system) | ECEA_Y_type |
| Ⓣ | Tantalum Solid Electrolytic Capacitors | ECS_type |
| ⓉⒻ | Metalized Plastic Film Capacitors (TF Series) | ECQV_type |
| ○ | Temperature Compensating Ceramic Capacitors | ECC_type |
| ○ | High-Dielectric Constant Ceramic Capacitors | ECK_type<br>ECR_type |
| ○ | Axial Lead Ceramic Capacitors | ECB_type |
| | Metalized Polyester Film Capacitors for Across the Line | ECQ_EW_type |
| | Aluminum Electrolytic Capacitors for Smoothing Circuit | ECES_type |
| | Multilayer Ceramic Chip Capacitors | ECUV_type |

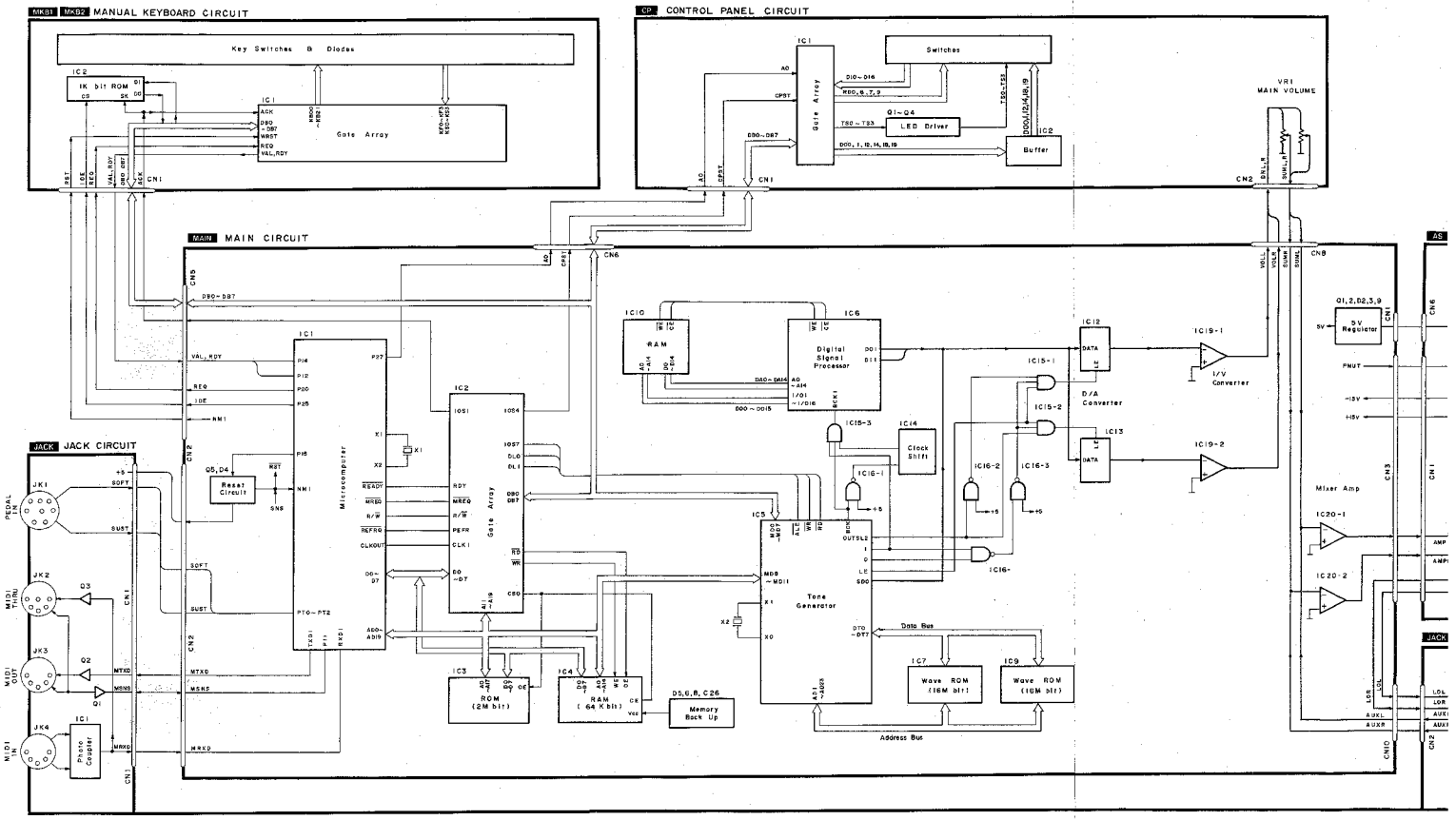


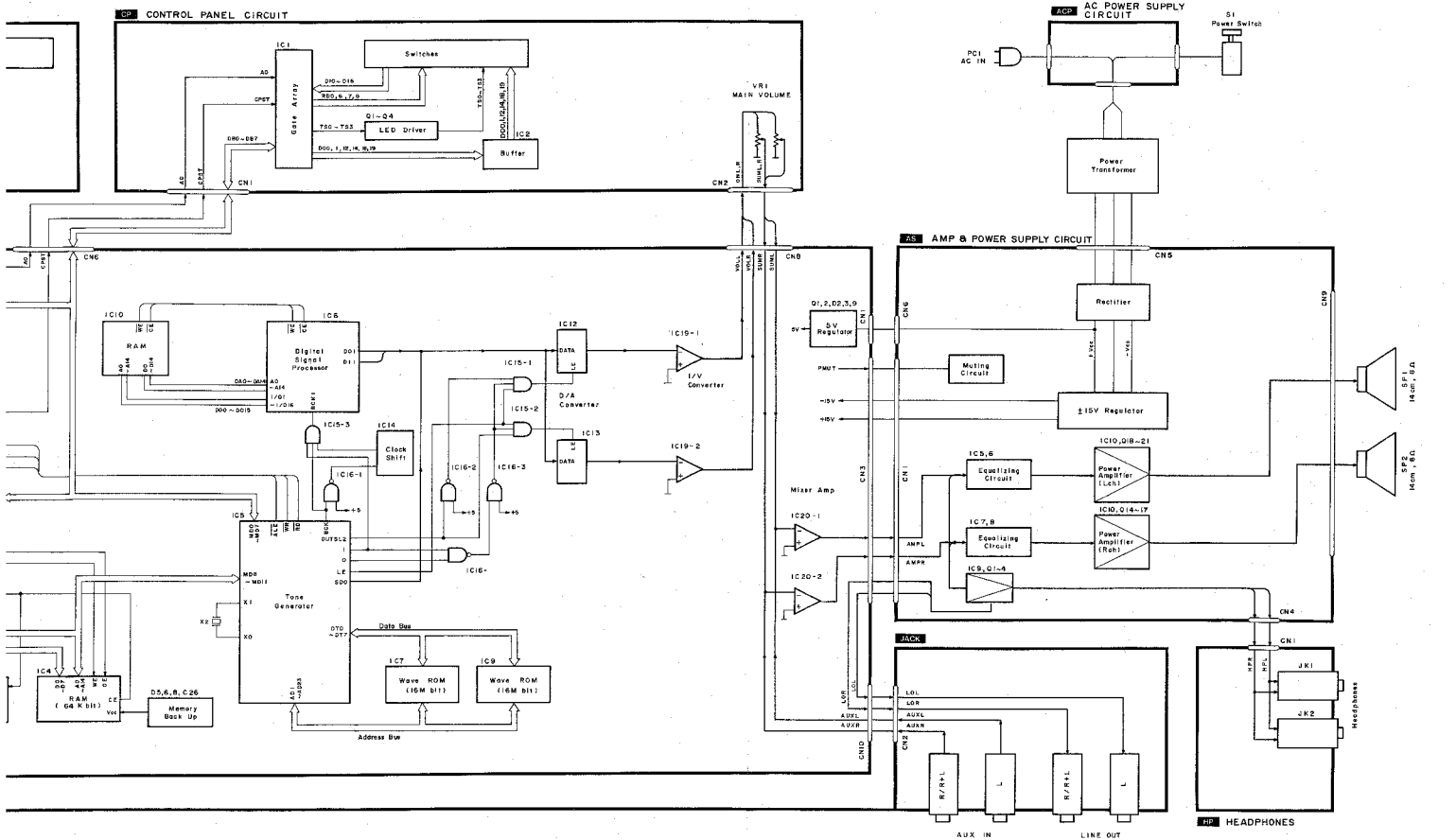
# MEMO

# WIRING CONNECTION Diagram



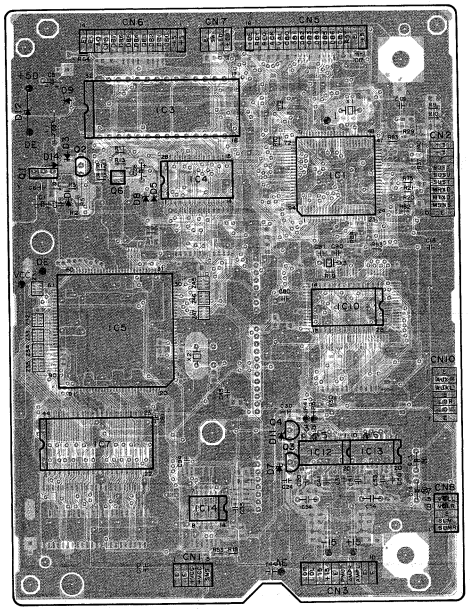
# BLOCK Diagram



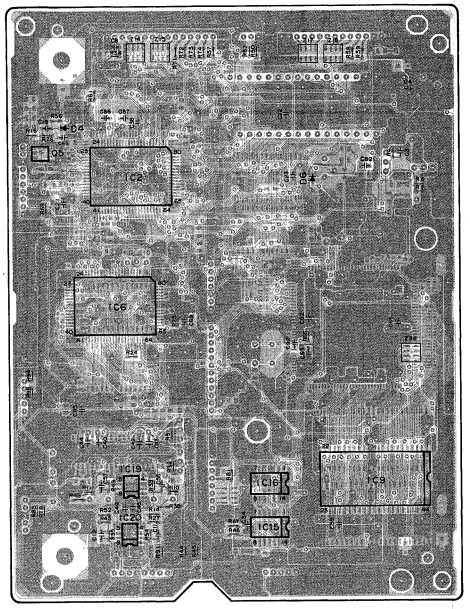

CP CONTROL PANEL CIRCUIT
IC1
Gate Array
Switches
LED Driver
Buffer
IC2
VR1
MAIN VOLUME
CN1
CN2
ACP AC POWER SUPPLY CIRCUIT
PC1
AC IN
S1
Power Switch
Power Transformer
AS AMP & POWER SUPPLY CIRCUIT
CN5
Rectifier
CN6
CN8
CN9
Q1,2,D2,3,9
5V Regulator
Muting Circuit
±15V Regulator
IC10
RAM
IC6
Digital Signal Processor
IC12
IC19-1
I/V Converter
IC15-1
IC15-2
D/A Converter
IC15-3
IC14
Clock Shift
IC13
IC19-2
IC16-1
IC16-2
IC16-3
IC16-
IC5
Tone Generator
Data Bus
Address Bus
IC7
Wave ROM (16M bit)
IC9
Wave ROM (16M bit)
IC4
RAM (64 Kbit)
D5,6,8, C26
Memory Back Up
Mixer Amp
IC20-1
IC20-2
IC5,6
Equalizing Circuit
IC7,8
Equalizing Circuit
IC9,Q1-4
IC10,D18~21
Power Amplifier (Lch)
IC10,Q14~17
Power Amplifier (Rch)
SP1
14cm, 8Ω
SP2
14cm, 8Ω
JACK
CN4
CN1
JK1
JK2
Headphones
HP HEADPHONES
AUX IN
LINE OUT

# MAIN P.C. Board

### MAIN (SXPG214681) (COMPONENT SIDE)




### MAIN (FOIL SIDE)




**Measuring Condition**

Check Point ❸~❽
Set to the self-diagnostic mode followings.
- While pressing two E keys (①) simultar the power switch.
- SOUND ..... GRAN
- Main Volume ..... Center
- Keyboard ..... $A_1$ (②)

**MAIN**

**NOTES:**

- IC'S

| | |
|---|---|
| IC1: | SVIGD70320GJ |
| IC2: | D65012GF-A79 |
| IC3: | QSIG03C02013 |
| IC4: | M5256BFP85LL |
| IC5: | TC25540AF006 |
| IC6: | D6382GF-3B9 |
| IC7: | QSIGH3C16CN9 |
| IC8: | QSIGH3C16CR0 |
| IC10: | HM65256BLF10 |
| IC12, 13: | PCM1702U |
| IC14: | D74HC164GS |
| IC15: | D74HC11GS |
| IC16: | D74HC00GS |
| IC19, 20: | M5218AFP |

- TRANSISTORS

| | |
|---|---|
| Q1: | 2SB941 |
| Q2, 3: | 2SC1815GR |
| Q4: | 2SA1015-GR |
| Q5: | 2SB709AR |
| Q6: | 2SD601AQ |

- DIODES

| | |
|---|---|
| D1: | MA8047H |
| D3~6, 9: | MA110 |
| D7, 11: | MA8062 |
| D8: | MA8056 |
| D12: | MA2062LF |

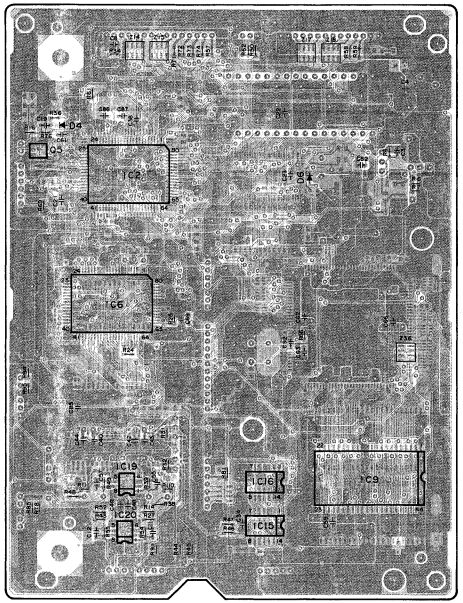
❶ RE

* Pow

❹

❼, ❽

## MAIN (FOIL SIDE)



**MAIN**

**NOTES:**

- IC'S
  - IC1: SVIGD70320GJ
  - IC2: D65012GF-A79
  - IC3: QSIG03C02013
  - IC4: M5256BFP85LL
  - IC5: TC25540AF006
  - IC6: D6382GF-3B9
  - IC7: QSIGH3C16CN9
  - IC9: QSIGH3C16CR0
  - IC10: HM65256BLF10
  - IC12, 13: PCM1702U
  - IC14: D74HC164GS
  - IC15: D74HC11GS
  - IC16: D74HC00GS
  - IC19, 20: M5218AFP
- TRANSISTORS
  - Q1: 2SB941
  - Q2, 3: 2SC1815GR
  - Q4: 2SA1015-GR
  - Q5: 2SB709AR
  - Q6: 2SD601AQ
- DIODES
  - D1: MA8047H
  - D3~6, 9: MA110
  - D7, 11: MA8062
  - D8: MA8056
  - D12: MA2062LF

### Measuring Condition

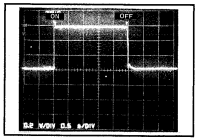
Check Point ❸~❽
Set to the self-diagnostic mode followings.

- While pressing two E keys (①) simultaneously, turn on the power switch.
- SOUND ..... GRAND PIANO
- Main Volume..... Center
- Keyboard ..... $A_1$ (②)

Check Point ❶
Set the initial setting mode (Refer to Page I-6)

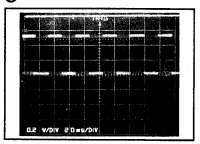
- SOUND ..... GRAND PIANO
- Main Volume..... Center

❶ RESET

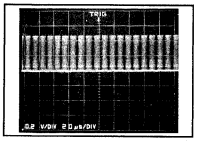



- Power SW ..... ON → OFF

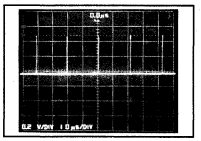
❸



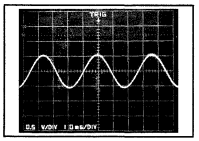

❹



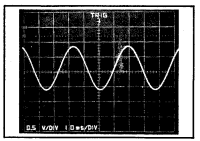

❺, ❻



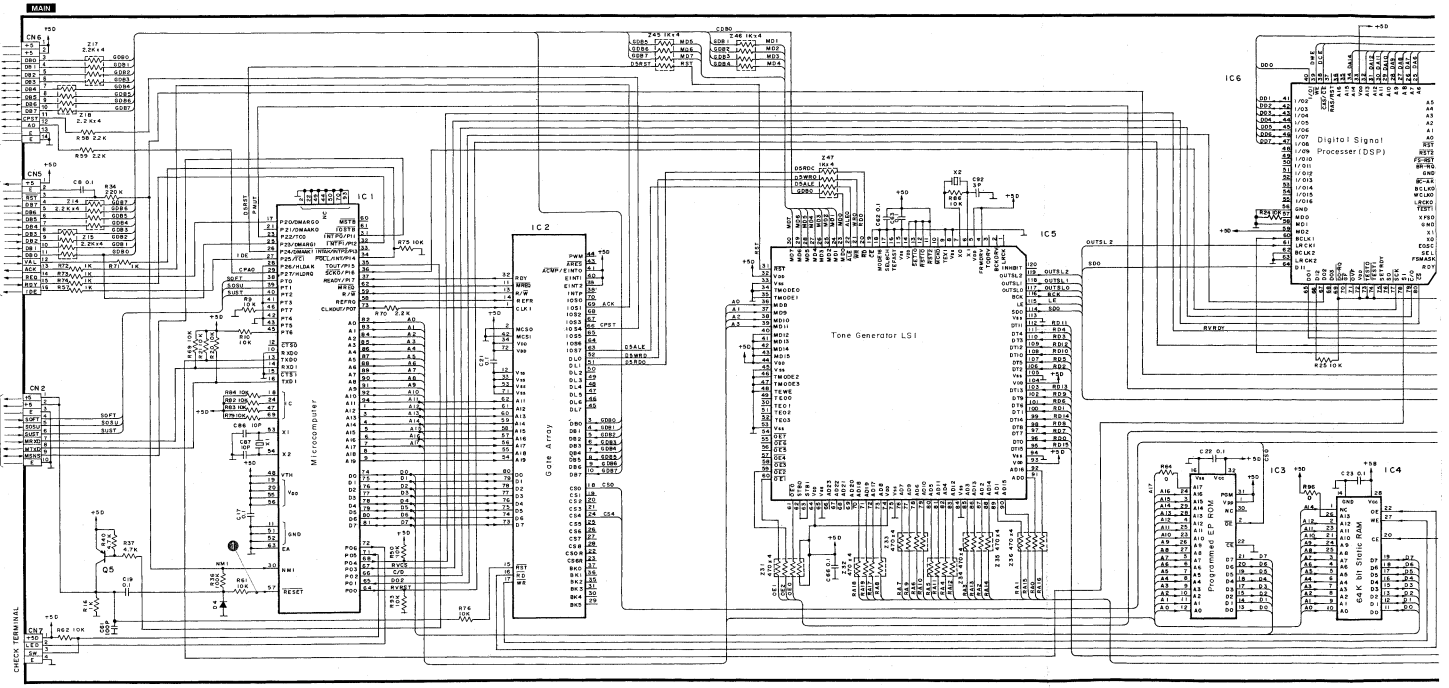

❼, ❽

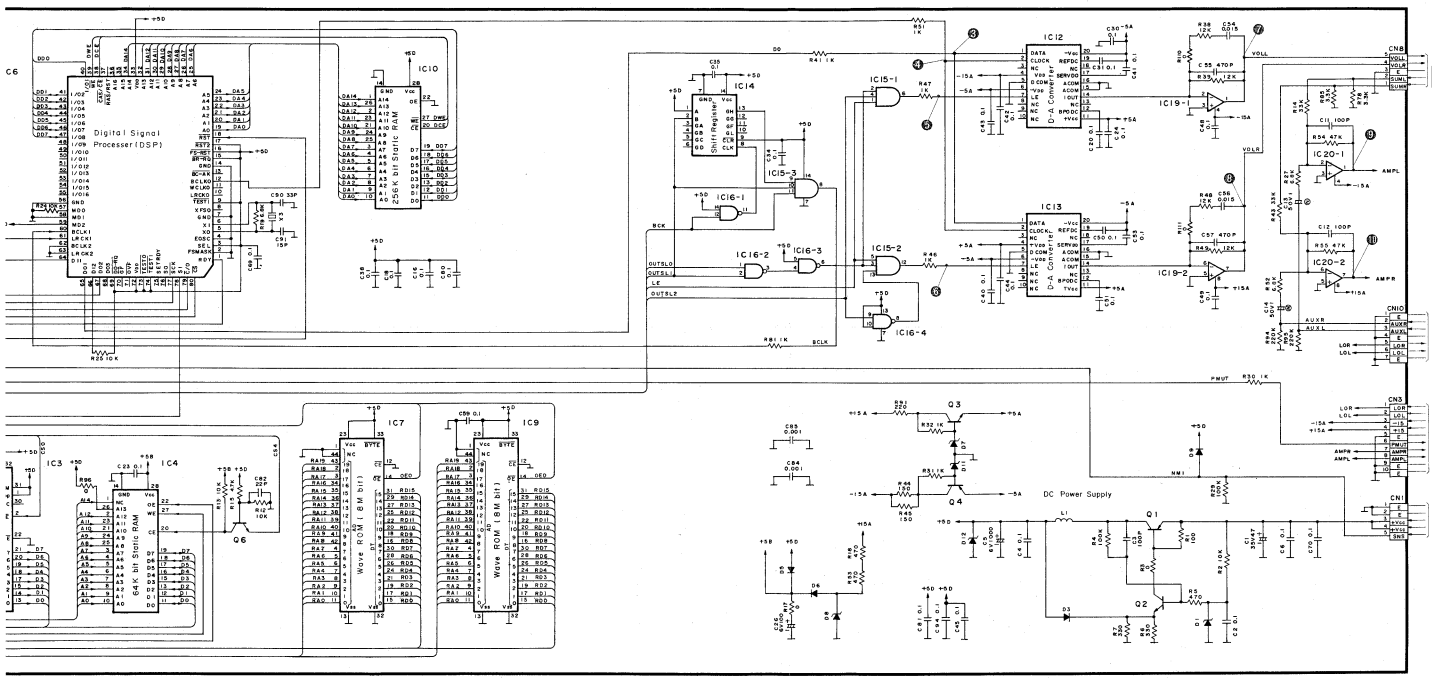



❾, ❿



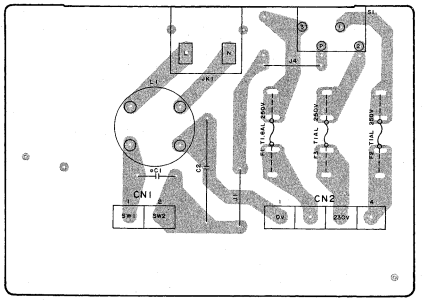
# MAIN P.C. Diagram




Digital Signal Processer(DSP)
256K bit Static RAM
64K bit Static RAM
Wave ROM (8M bit)
Wave ROM (8M bit)
D/A Converter
D/A Converter
Register
DC Power Supply
IC1
IC2
IC3
IC4
IC7
IC9
IC10
IC12
IC13
IC14
IC15-1
IC15-2
IC15-3
IC16-1
IC16-2
IC16-3
IC16-4
IC19-1
IC19-2
IC20-1
IC20-2
Q1
Q2
Q3
Q4
Q6
CN1
CN2
CN3
CN8
CN10
CN11
CN12
VOLL
VOLR
AMPL
AMPR
AUXR
AUXL
LOR
LOL
PMUT
NMI
BCK
LRCK
BCLK
OUTSL0
OUTSL1
OUTSL2
LC
SCLK
+5D
+5A
-5A
+15A
-15A

# AS/ACP/HP P.C. Board

## ACP X XR XS XD XT (SXPG215541)

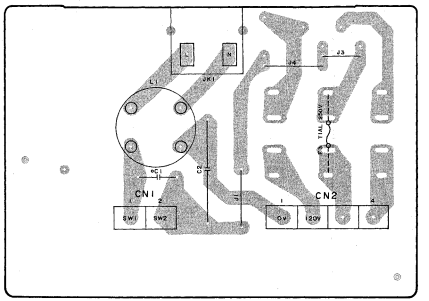



ACP

**NOTE:**

- FUSES
  - F1: XBA2C16TB0
  - F2, F3: XBA2C10TB0

## ACP Others (SXPG215511)

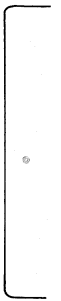



ACP

**NOTE:**

- FUSE
  - F3: XBA2C10TB0

## ACP M

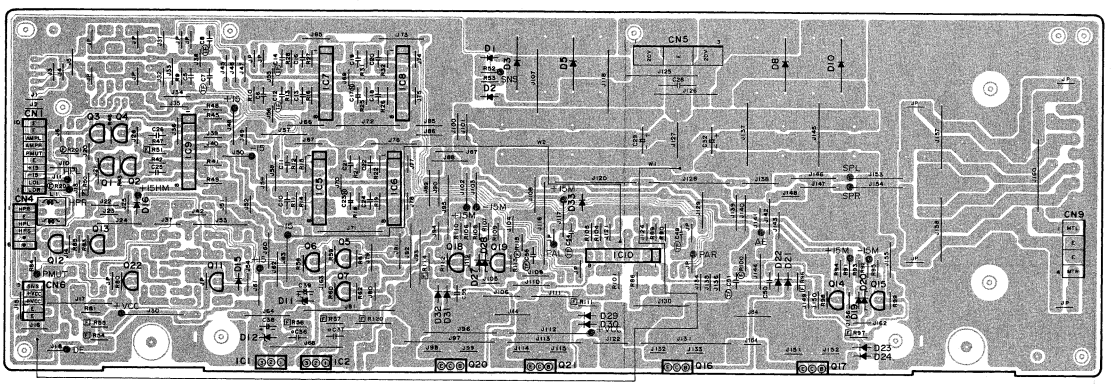


ACP

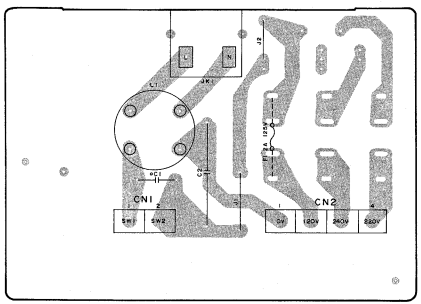
**NOTE:**

- FUSE
  - F1:

## AS (SXPG2147111)



## ACP M MC XM (SXPG215531)

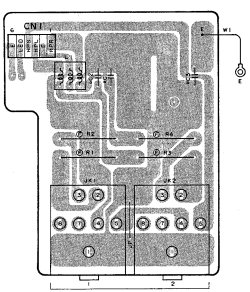



ACP

NOTE:

- FUSE
  F1: XBA1C40NU100

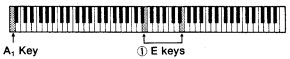
## HP (SXPG210841)




### ■ Measuring Condition

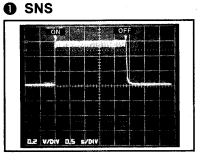
Check Point ❸~❺
Set to the self-diagnostic mode followings.

- While pressing two E keys (①) simultaneously, turn on the power switch.
- SOUND ..... GRAND PIANO
- Main Volume ..... Center
- Keyboard ..... $A_1$ (②)



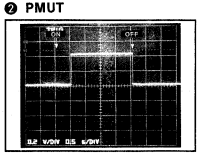

Check Point ❶, ❷
Set the intial setting mode (Refer to Page I-6)

**❶ SNS**



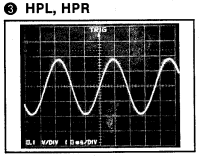

• Power SW ..... ON → OFF

**❷ PMUT**

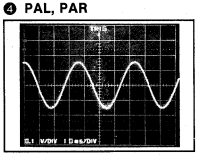



• Power SW ..... ON → OFF

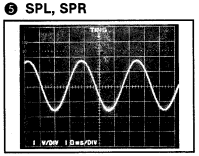
**❸ HPL, HPR**



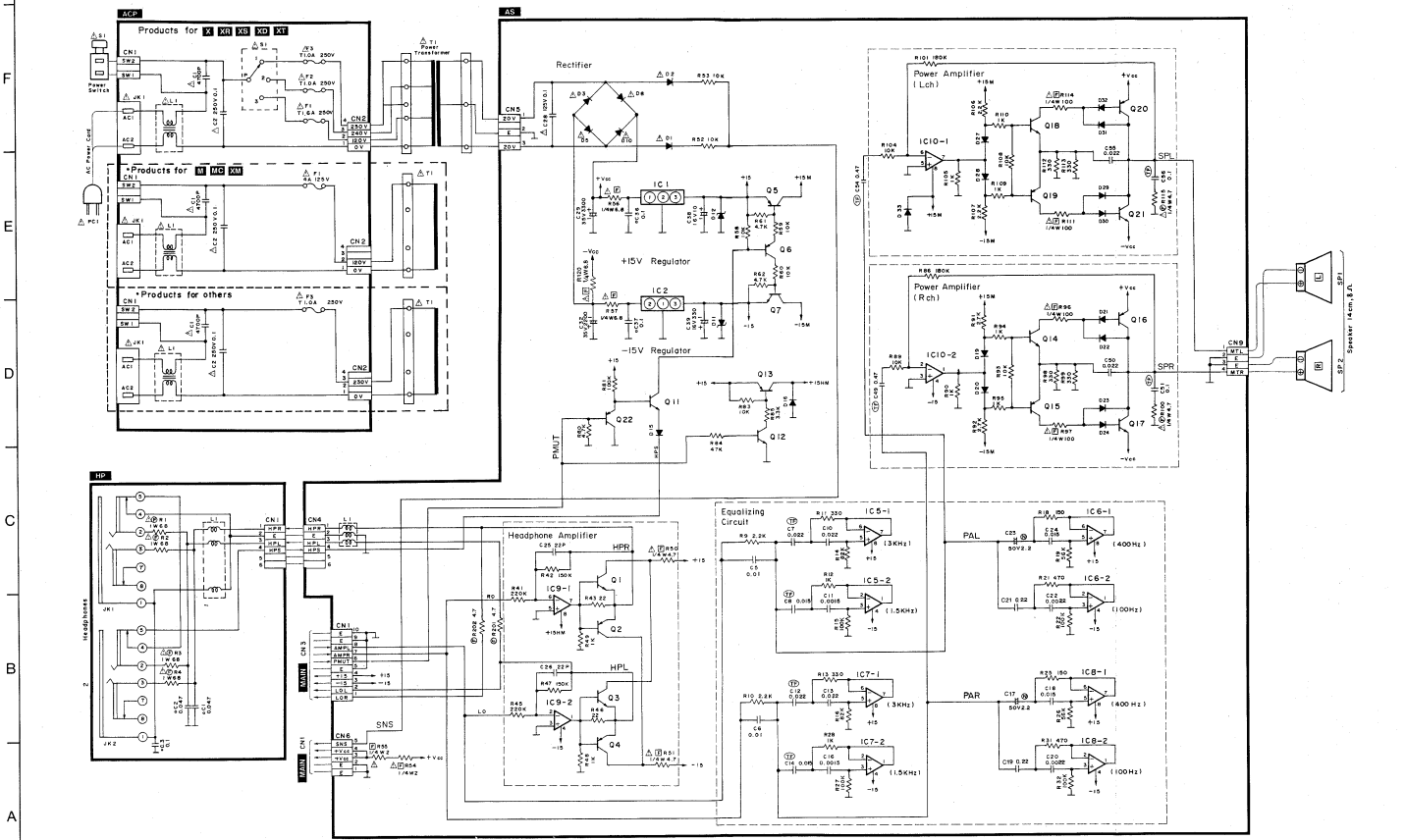

**❹ PAL, PAR**



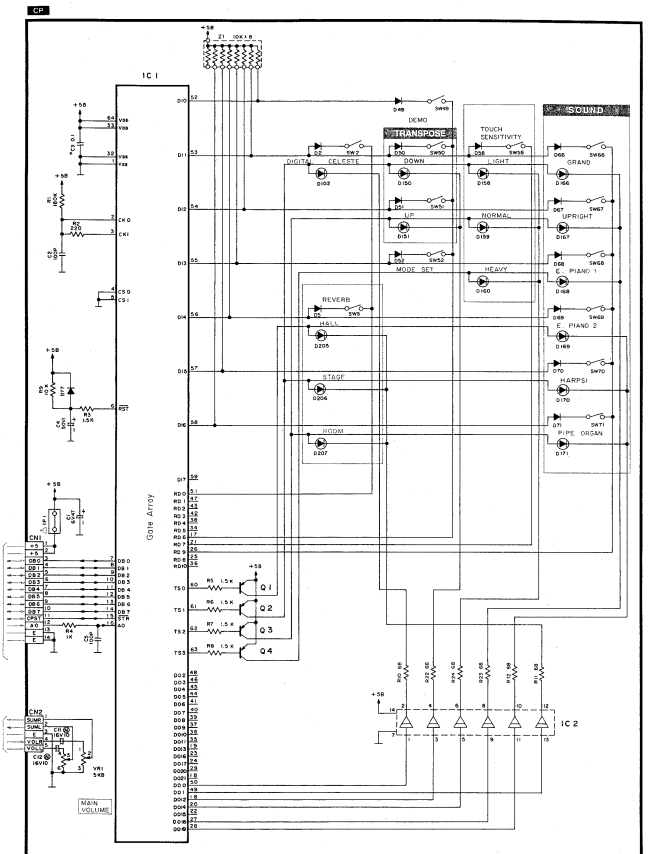

**❺ SPL, SPR**

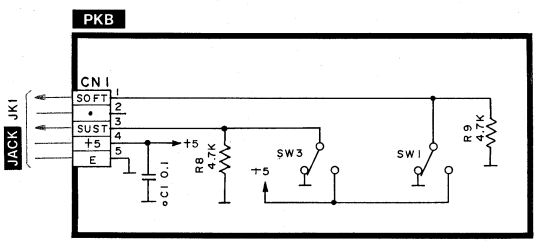


# AS/ACP/HP P.C. Diagram



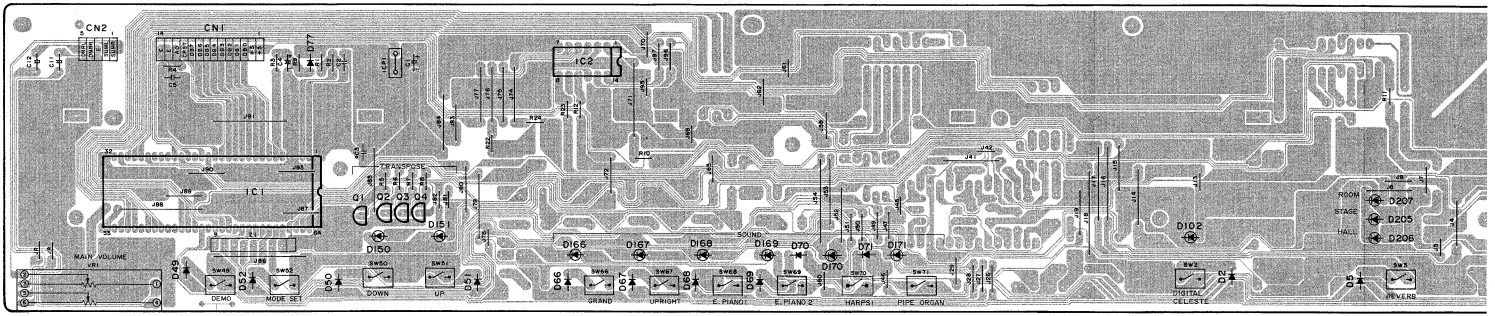
# CP/PKB P.C. Diagram



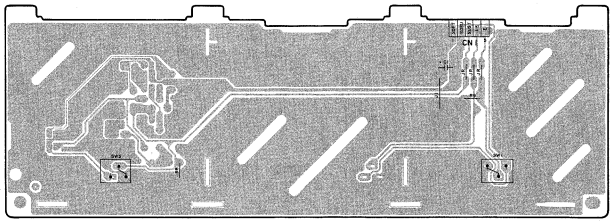



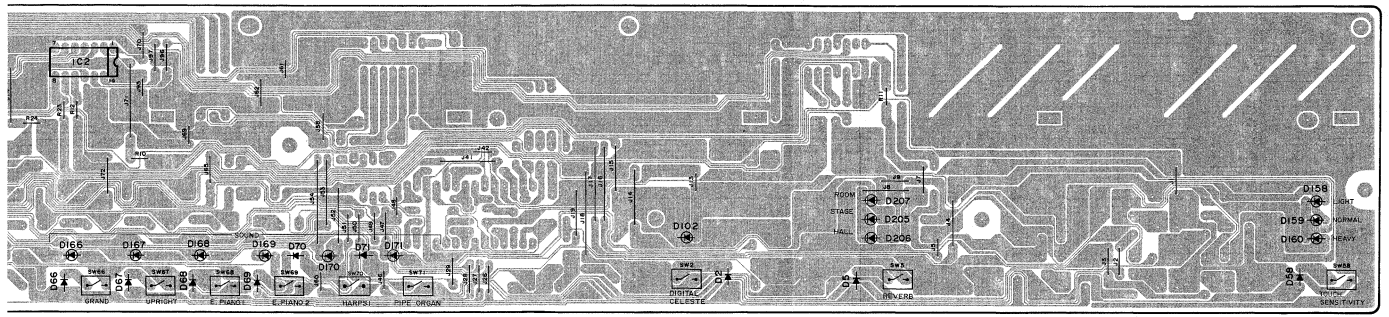
# CP/PKB P.C. Board

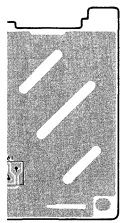
**CP (SXPG214821)**




**PKB (SXPG218231)**





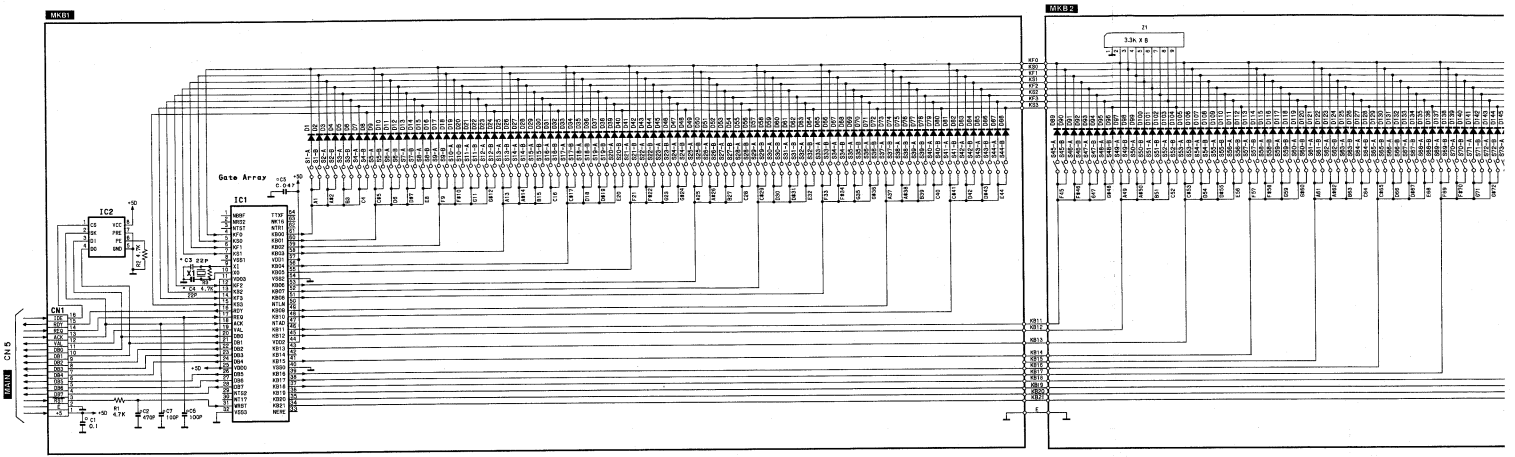



**CP**

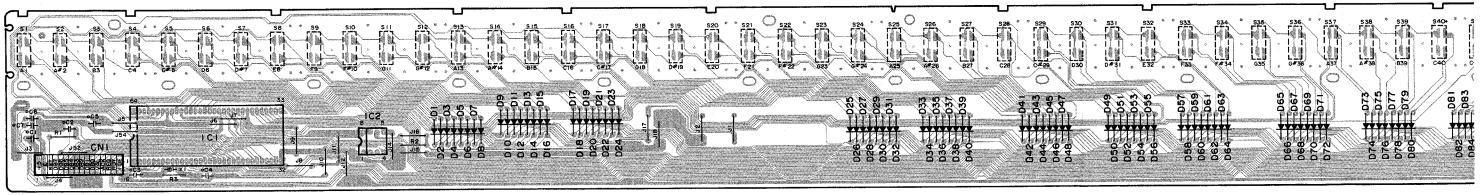
**NOTES:**

- IC'S
  - IC1: SVIGM603A121
  - IC2: HD74LS07P
- TRANSISTORS
  - Q1~4: 2SA1015-GR
- DIODES
  - D2, 5, 49~52, 58, 66~71, 77: MA165
  - D102, 150, 151, 158~160, 166~171, 205~207: LN282R

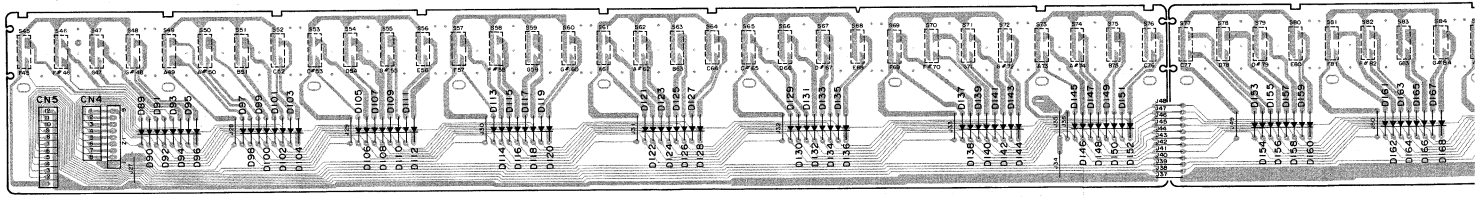
# MKB1/2

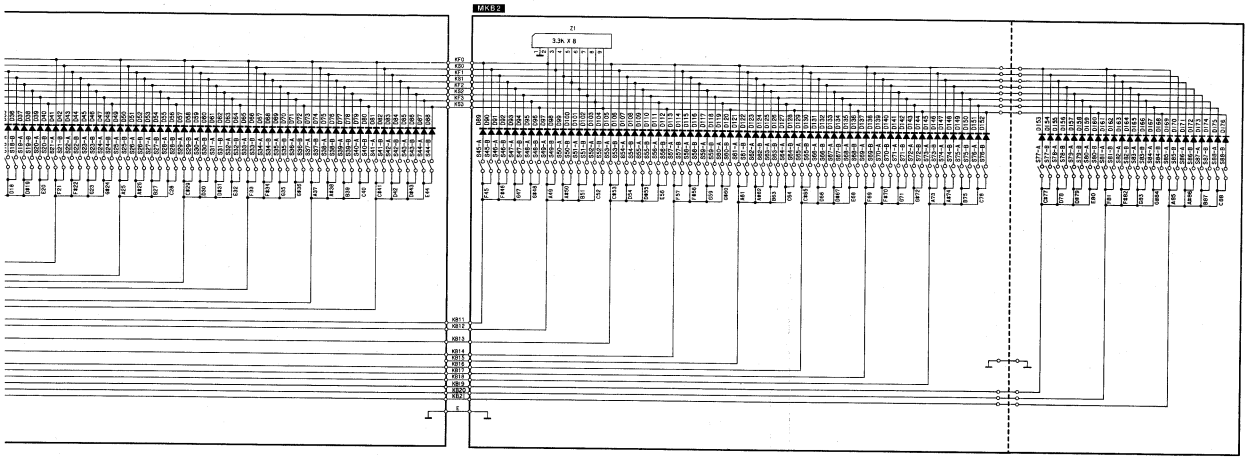


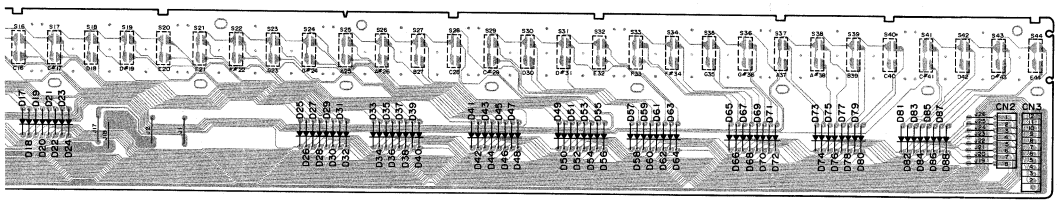

## MKB1 (SXPG209741A)

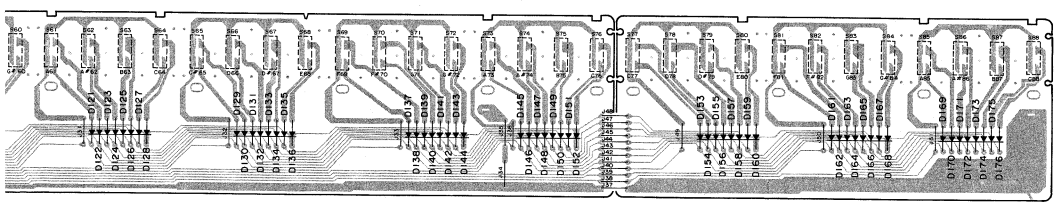



## MKB2 (SXPG209741B)







**MKB1**

**NOTES:**

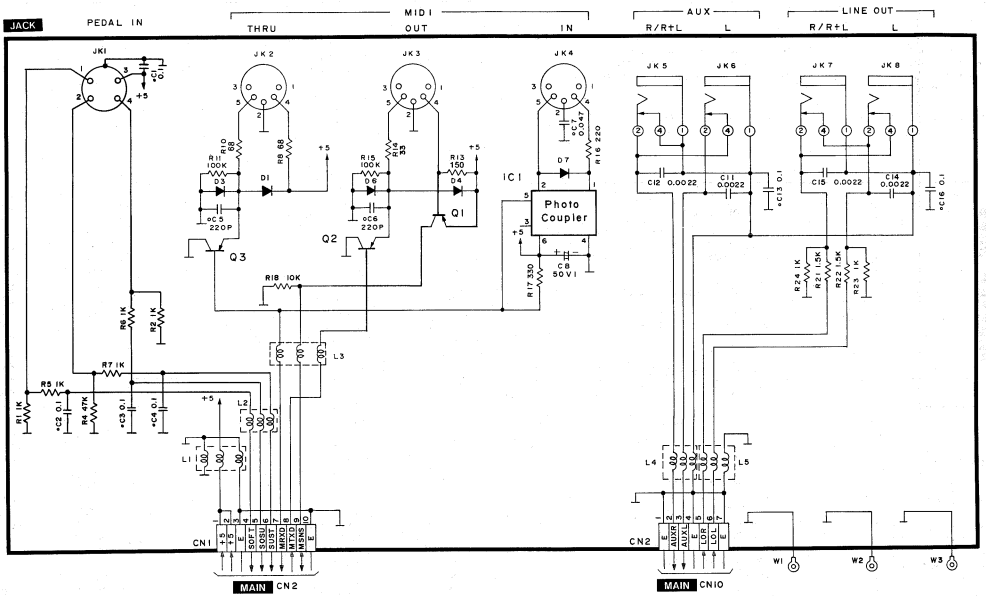
- IC'S
  - IC1: MSM7U042016
  - IC2: BR93LC46
- DIODES
  - D1~88: MA165

**MKB2**

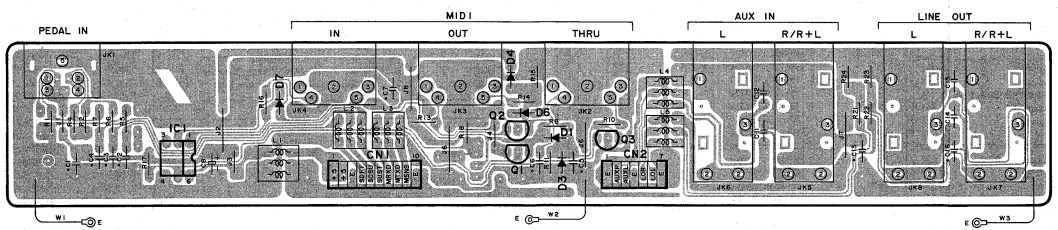
**NOTE:**

- DIODES
  - D89~176: MA165

# JACK




## JACK (SXPG219611)




**JACK**

**NOTES:**

- IC'S
  IC1: SVIGTLP513
- TRANSISTORS
  Q1~3: 2SA1015-GR
- DIODES
  D1, 3, 4, 6, MA165
  7:

# REPLACEMENT PARTS LIST.....P.C.B. and Wiring Parts

**Notes:**

1. The marking (RTL) indicates that the Retention Time is limited for this item. After the discontinuation of this assembly in production, the item will continue to be available for a specific period of time. The retension period of availability is dependant on the type of assembly, and in accordance with the laws governing part and product retention.
   After the end of this period, the assembly will no longer be available.
2. Important safety notice
   Components identified by △ mark have special characteristics important for safety. When replacing any of these components, use only manufacturer's specified parts.
3. The "S" mark is service standard parts and may differ from production parts.
4. ○ mark are new parts.
5. For part No. with area mark, check the area when placing an order.

## ■ PRINTED CIRCUIT BOARD

| | RTL | Area | Part No. | Description | P/S |
|---|---|---|---|---|---|
| ○ | RTL | | SXPG214681 | MAIN | 1 |
| ○ | RTL | | SXPG2147111 | AS | 1 |
| | RTL | M MC MF | SXPG215531 | ACP | 1 |
| | RTL | X XR XS XD XT | SXPG215541 | ACP | 1 |
| | RTL | Others | SXPG215511 | ACP | 1 |
| | RTL | | SXPG210841 | HP | 1 |
| | RTL | | SXPG214821 | CP | 1 |
| | RTL | | SXPG218231 | PKB | 1 |
| | RTL | | SXPG209741A | MKB1 | 1 |
| | RTL | | SXPG209741B | MKB2 | 1 |
| | RTL | | SXPG219611 | JACK | 1 |

## MAIN MAIN CIRCUIT

| | Ref. No. | Part No. | Description | P/S |
|---|---|---|---|---|
| | | **INTEGRATED CIRCUITS** | | |
| | IC1 | SVIGD70320GJ | 16 bit Microcomputer | 1 |
| | IC2 | D65012GF-A79 | Gate Array | 1 |
| | IC3 | QSIG03C02013 | 2M bit programmed ROM | 1 |
| | IC4 | M5256BFP85LL | 256K bit STATIC RAM | 1 |
| | IC5 | TC25540AF006 | Tone Generator LSI | 1 |
| | IC6 | D6382GF-3B9 | Digital Signal Processor | 1 |
| | IC7 | QSIGH3C16CN9 | 16M bit Wave ROM | 1 |
| | IC9 | QSIGH3C16CR0 | 16M bit Wave ROM | 1 |
| | IC10 | HM65256BLF10 | 256K bit Pseudo Static RAM | 1 |
| | IC12, 13 | PCM1702U | D-A Converter | 2 |
| | IC14 | D74HC164GS | Shift Resister | 1 |
| | IC15 | D74HC11GS | 3 input AND GATES | 1 |
| | IC16 | D74HC00GS | Quad 2 input NAND GATES | 1 |
| | IC19, 20 | M5218AFP | Operational Amplifier | 2 |
| | | **TRANSISTORS** | | |
| | Q1 | 2SB941 | Transistor | 1 |
| S | Q2, 3 | 2SC1815GR | Transistor | 2 |
| S | Q4 | 2SA1015-GR | 2SA933STRS (SUB. Part) | 1 |
| | Q5 | 2SB709AR | Transistor | 1 |
| | Q6 | 2SD601AQ | Transistor | 1 |
| | | **DIODES** | | |
| | D1 | MA8047 | Zener, 4.7V | 1 |
| | D3~6, 9 | MA110 | Diode | 5 |
| | D7 | MA8062 | Zener, 6.2V | 1 |
| | D8 | MA8056 | Zener, 5.6V | 1 |
| | D11 | MA8062 | Zener, 6.2V | 1 |
| | D12 | MA2062LF | Zener, 6.2V | 1 |
| | D14 | EK04 | Diode | 1 |

| Ref. No. | Part No. | Description | P/S |
|---|---|---|---|
| | **OSCILLATORS** | | |
| X1 | QSXG2F1400A | 14 MHz, Ceramic Oscillator | 1 |
| X2 | QSXG1141915A | 49 MHz, Quartz Oscillator | 1 |
| X3 | QSXG2F2500A | 25 MHz, Ceramic Oscillator | 1 |
| | **COMPONENT COMBINATIONS** | | |
| Z14, 15, 17, 18 | EXBS8V222J | 2.2kΩ × 4 | 4 |
| Z31~36 | EXBV8V471J | 470Ω × 4 | 6 |
| Z45~47 | EXBV8V102J | 1kΩ × 4 | 3 |
| | **COIL & LINE FILTER** | | |
| L1 | QLCGTJR10KA | Coil | 1 |
| | **RESISTORS** | | |
| R1 | ERJ6GEYJ101V | 100Ω | 1 |
| R2 | ERJ6GEYJ103V | 10kΩ | 1 |
| R3 | ERJ6GEY0R00V | 0Ω | 1 |
| R4 | ERJ6GEYJ104V | 100kΩ | 1 |
| R5 | ERJ6GEYJ471V | 470Ω | 1 |
| R6, 7 | ERJ6GEYJ331V | 330Ω | 2 |
| R9, 10, 12, 13 | ERJ6GEYJ103V | 10kΩ | 4 |
| R14 | ERJ6GEYJ333V | 33kΩ | 1 |
| R15 | ERJ6GEYJ472V | 4.7kΩ | 1 |
| R16 | ERJ6GEYJ102V | 1kΩ | 1 |
| R17 | ERJ6GEY0R00V | 0Ω | 1 |
| R18 | ERJ6GEYJ471V | 470Ω | 1 |
| R19 | ERJ6GEYJ682V | 6.8kΩ | 1 |
| R20, 21, 24, 25 | ERJ6GEYJ103V | 10kΩ | 4 |
| R27 | ERJ6GEYJ682V | 6.8kΩ | 1 |
| R29 | ERJ6GEYJ104V | 100kΩ | 1 |
| R30~32 | ERJ6GEYJ102V | 1kΩ | 3 |
| R34 | ERJ6GEYJ224V | 220kΩ | 1 |
| R36 | ERJ6GEYJ104V | 100kΩ | 1 |
| R37 | ERJ6GEYJ472V | 4.7kΩ | 1 |
| R38, 39 | ERJ6GEYJ123V | 12kΩ | 2 |
| R40 | ERJ6GEYJ472V | 4.7kΩ | 1 |
| R41 | ERJ6GEYJ102V | 1kΩ | 1 |
| R43 | ERJ6GEYJ333V | 33kΩ | 1 |
| R44, 45 | ERJ6GEYJ151V | 150Ω | 2 |
| R46, 47 | ERJ6GEYJ102V | 1kΩ | 2 |
| R48, 49 | ERJ6GEYJ123V | 12kΩ | 2 |
| R50 | ERJ6GEYJ103V | 10kΩ | 1 |
| R51 | ERJ6GEYJ102V | 1kΩ | 1 |
| R52 | ERJ6GEYJ682V | 6.8kΩ | 1 |
| R53 | ERJ6GEYJ471V | 470Ω | 1 |
| R54, 55 | ERJ6GEYJ473V | 47kΩ | 2 |
| R57 | ERJ6GEYJ102V | 1kΩ | 1 |
| R58, 59 | ERJ6GEYJ222V | 2.2kΩ | 2 |
| R61, 62 | ERJ6GEYJ103V | 10kΩ | 2 |
| R64 | ERJ6GEY0R00V | 0Ω | 1 |
| R69 | ERJ6GEYJ103V | 10kΩ | 1 |

| Ref. No. | Part No. | Description | P/S |
|---|---|---|---|
| R70 | ERJ6GEYJ222V | 2.2kΩ | 1 |
| R71~74 | ERJ6GEYJ102V | 1kΩ | 4 |
| R75, 76 | ERJ6GEYJ103V | 10kΩ | 2 |
| R78 | ERJ6GEYJ332V | 3.3kΩ | 1 |
| R79 | ERJ6GEYJ103V | 10kΩ | 1 |
| R81 | ERJ6GEYJ102V | 1kΩ | 1 |
| R82~84 | ERJ6GEYJ103V | 10kΩ | 3 |
| R85 | ERJ6GEYJ332V | 3.3kΩ | 1 |
| R86 | ERJ6GEYJ103V | 10kΩ | 1 |
| R91 | ERJ6GEYJ221V | 220Ω | 1 |
| R93 | ERJ6GEYJ103V | 10kΩ | 1 |
| R94, 95 | ERJ6GEYJ224V | 220kΩ | 2 |
| R96, 110, 111 | ERJ6GEY0R00V | 0Ω | 3 |
| | **CAPACITORS** | | |
| C1 | ECEA1VU470 | 47μF, 35V | 1 |
| C2 | ECUV1H104ZFX | 0.1μF | 1 |
| C3 | ECUV1H101JG | 100pF | 1 |
| C4 | ECUV1H104ZFX | 0.1μF | 1 |
| C5 | ECEA0JU102 | 1000μF, 6.3V | 1 |
| C6, 8 | ECUV1H104ZFX | 0.1μF | 2 |
| C11, 12 | ECUV1H101JG | 100pF | 2 |
| C13, 14 | ECEA1HKN010 | 1μF, 50V | 2 |
| C16~19 | ECUV1H104ZFX | 0.1μF | 4 |
| C20~24 | ECUV1H104ZFX | 0.1μF | 5 |
| C26 | ECEA0JU101 | 100μF, 6.3V | 1 |
| C30, 31, 34, 35, 38, 40~45 | ECUV1H104ZFX | 0.1μF | 11 |
| C48~51, 53 | ECUV1H104ZFX | 0.1μF | 5 |
| C54 | ECQB1H153JF | 0.015μF | 1 |
| C55 | ECUV1H471JG | 470pF | 1 |
| C56 | ECQB1H153JF | 0.015μF | 1 |
| C57 | ECUV1H471JG | 470pF | 1 |
| C59, 62, 63 | ECUV1H104ZFX | 0.1μF | 3 |
| C61 | ECUV1H101JG | 100pF | 1 |
| C66, 69, 70, 80, 81 | ECUV1H104ZFX | 0.1μF | 5 |
| C82 | ECUV1H220JN | 22pF | 1 |
| C84, 85 | ECUV1H102JX | 0.001μF | 2 |
| C86, 87 | ECUV1H100DCN | 10pF | 2 |
| C90 | ECUV1H330JCN | 33pF | 1 |
| C91 | ECUV1H150JCN | 15pF | 1 |
| C92 | ECUV1H030CCN | 3pF | 1 |
| C94 | ECUV1H104ZFX | 0.1μF | 1 |

## AS AMP & POWER SUPPLY CIRCUIT

| | Ref. No. | Part No. | Description | P/S |
|---|---|---|---|---|
| | | **INTEGRATED CIRCUITS** | | |
| | IC1 | SVIGM5F7815 | +15V Voltage Regulator | 1 |
| | IC2 | M5F79M15L | −15V Voltage Regulator | 1 |
| S | IC5~10 | SVIGM5218L | Operational Amplifier | 6 |
| | | **TRANSISTORS** | | |
| | Q1, 3 | 2SC3940ARS | Transistor | 2 |
| | Q2, 4 | 2SA1534AR | Transistor | 2 |
| S | Q5, 6, 13, 15, 19, 22 | 2SA1015-GR | 2SA933STRS (SUB. Part) | 6 |
| S | Q7, 11, 12, 14, 18 | 2SC1815GR | Transistor | 5 |
| | Q16, 20 | 2SB946P | Transistor | 2 |
| | Q17, 21 | 2SD1271P | Transistor | 2 |
| | | **DIODES** | | |
| | D1, 2 △ | SVDGERA1502 | Rectifier | 2 |
| | D3, 5, 8, 10 △ | SVDS3V20 | Rectifier | 4 |

| Ref. No. | Part No. | Description | P/S |
|---|---|---|---|
| D11, 12 | MA4180 | Zener, 18V | 2 |
| D15, 19, 20, 21, 24, 27, 28, 30, 32 | MA165 | Diode | 9 |
| D16, 33 | EK04 | Diode | 2 |
| D22, 23, 29, 31 | MA167 | Diode | 4 |
| | **COIL & LINE FILTER** | | |
| L1 | QLQGT3T150SA | Coil | 1 |
| | **RESISTORS** | | |
| R9, 10 | ERDS2TJ222 | 2.2kΩ | 2 |
| R11 | ERDS2TJ331 | 330Ω | 1 |
| R12 | ERDS2TJ102 | 1kΩ | 1 |
| R13 | ERDS2TJ331 | 330Ω | 1 |
| R14 | ERDS2TJ823 | 82kΩ | 1 |
| R15 | ERDS2TJ104 | 100kΩ | 1 |
| R16 | ERDS2TJ823 | 82kΩ | 1 |
| R18 | ERDS2TJ151 | 150Ω | 1 |
| R19 | ERDS2TJ563 | 56kΩ | 1 |
| R21 | ERDS2TJ471 | 470Ω | 1 |
| R22 | ERDS2TJ104 | 100kΩ | 1 |
| R25 | ERDS2TJ151 | 150Ω | 1 |
| R26 | ERDS2TJ563 | 56kΩ | 1 |
| R27 | ERDS2TJ104 | 100kΩ | 1 |
| R28 | ERDS2TJ102 | 1kΩ | 1 |
| R31 | ERDS2TJ471 | 470Ω | 1 |
| R32 | ERDS2TJ104 | 100kΩ | 1 |
| R41 | ERDS2TJ224 | 220kΩ | 1 |
| R42 | ERDS2TJ154 | 150kΩ | 1 |
| R43 | ERDS2TJ220 | 22Ω | 1 |
| R45 | ERDS2TJ224 | 220kΩ | 1 |
| R46 | ERDS2TJ220 | 22Ω | 1 |
| R47 | ERDS2TJ154 | 150kΩ | 1 |
| R48, 49 | ERDS2TJ102 | 1kΩ | 2 |
| R50, 51 △ | ERD2FCVJ4R7 | 4.7Ω, 1/4W, Fuse Type | 2 |
| R52, 53 | ERDS2TJ103 | 10kΩ | 2 |
| R54, 55 △ | ERQ14AJ2R0 | 2Ω, 1/4W, Fuse Type | 2 |
| R56, 57 △ | ERD2FCVJ6R8 | 6.8Ω, 1/4W, Fuse Type | 2 |
| R58~60 | ERDS2TJ103 | 10kΩ | 3 |
| R61, 62 | ERDS2TJ472 | 4.7kΩ | 2 |
| R80 | ERDS2TJ472 | 4.7kΩ | 1 |
| R81 | ERDS2TJ104 | 100kΩ | 1 |
| R83 | ERDS2TJ103 | 10kΩ | 1 |
| R84 | ERDS2TJ473 | 47kΩ | 1 |
| R85 | ERDS2TJ332 | 3.3kΩ | 1 |
| R86 | ERDS2TJ184 | 180kΩ | 1 |
| R89 | ERDS2TJ103 | 10kΩ | 1 |
| R90 | ERDS2TJ102 | 1kΩ | 1 |
| R91, 92 | ERDS2TJ272 | 2.7kΩ | 2 |
| R93 | ERDS2TJ103 | 10kΩ | 1 |
| R94, 95 | ERDS2TJ102 | 1kΩ | 2 |
| R96, 97 △ | ERD2FCVG101 | 100Ω, 1/4W, Fuse Type | 2 |
| R98, 99 | ERDS2TJ331 | 330Ω | 2 |
| R100 △ | ERD25FVJ4R7 | 4.7Ω, 1/4W, Flame-Proof | 1 |
| R101 | ERDS2TJ184 | 180kΩ | 1 |
| R104 | ERDS2TJ103 | 10kΩ | 1 |
| R105 | ERDS2TJ102 | 1kΩ | 1 |
| R106, 107 | ERDS2TJ272 | 2.7kΩ | 2 |
| R108 | ERDS2TJ103 | 10kΩ | 1 |
| R109, 110 | ERDS2TJ102 | 1kΩ | 2 |
| R111 △ | ERD2FCVG101 | 100Ω, 1/4W, Fuse Type | 1 |
| R112, 113 | ERDS2TJ331 | 330Ω | 2 |
| R114 △ | ERD2FCVG101 | 100Ω, 1/4W, Fuse Type | 1 |
| R115 △ | ERD25FVJ4R7 | 4.7Ω, 1/4W, Flame-Proof | 1 |
| R120 △ | ERD2FCJ6R8 | 6.8Ω, 1/4W, Fuse Type | 1 |
| R201, 202 △ | ERD25FVJ4R7 | 4.7Ω, 1/4W, Flame-Proof | 2 |

## HP HEADPHONES CIRCUIT

| Ref. No. | Part No. | Description | P/S |
|---|---|---|---|
| **COIL & LINE FILTER** | | | |
| L1 | QLQGT3T150SA | Coil | 1 |
| **JACKS** | | | |
| JK1, 2 | SJJG100A | Jack | 2 |
| **RESISTORS** | | | |
| R1~4 △ | ERG1ANJP680S | 68Ω, 1W, Flame-Proof | 4 |
| **CAPACITORS** | | | |
| C1, 2 | ECKF1E473ZV | 0.047μF | 2 |
| C3 | ECRF1H104ZF | 0.1μF | 1 |

## CP CONTROL PANEL

| Ref. No. | Part No. | Description | P/S |
|---|---|---|---|
| **INTEGRATED CIRCUITS** | | | |
| IC1 | SVIGM603A121 | Gate Array | 1 |
| IC2 | HD74LS07P | Hex Buffers | 1 |
| **TRANSISTORS** | | | |
| S Q1~4 | 2SA1015-GR | 2SA933STRS (SUB. Part) | 4 |
| **DIODES** | | | |
| D2, 5, 49~52, 58, 66~71, 77 | MA165 | Diode | 14 |
| D102, 150, 151, 158~160, 166~171, 205~207 | LN282R | LED (Red) | 15 |
| **COMPONENT COMBINATION** | | | |
| Z1 | EXBPI8103JM | 10kΩ×8 | 1 |
| **SWITCHES** | | | |
| S2, 5, 49~52, 58, 66~71 | EVQ21507K | Push Switch | 13 |
| **IC PROTECTOR** | | | |
| IP1 △ | ICP-N10T104 | IC Protector | 1 |
| **VARIABLE RESISTOR** | | | |
| VR1 | QRVG25P01B53 | 5kΩ B, Main Volume | 1 |
| **RESISTORS** | | | |
| R1 | ERDS2TJ184 | 180kΩ | 1 |
| R2 | ERDS2TJ221 | 220Ω | 1 |
| R3 | ERDS2TJ152 | 1.5kΩ | 1 |
| R4 | ERDS2TJ102 | 1kΩ | 1 |
| R5~8 | ERDS2TJ152 | 1.5kΩ | 4 |
| R9 | ERDS2TJ103 | 10kΩ | 1 |
| R10~12, 22~24 | ERDS2TJ680 | 68Ω | 6 |

## ACP AC POWER SUPPLY CIRCUIT

| Ref. No. | Part No. | Description | P/S |
|---|---|---|---|
| **COIL & LINE FILTER** | | | |
| L1 △ | SLTGLF3 | Line Filter | 1 |
| **JACK** | | | |
| JK1 △ | SJVD0203B | AC Inlet | 1 |
| **SWITCH** | | | |
| S1 △ | SSRG100A | Voltage Selector, X XK XS XD UT | 1 |
| **FUSES** | | | |
| F1 △ | XBA1C40NU100 | 4A, 125V, M MK MX | 1 |
| F1 △ | XBA2C16TB0 | T1.6A, 250V, X XK XS XD UT | 1 |
| F2 △ | XBA2C10TB0 | T1.0A, 250V, X XK XS XD UT | 1 |
| F3 △ | XBA2C10TB0 | T1.0A, 250V except, M MK MX | 1 |
| **CAPACITORS** | | | |
| C1 △ | ECKCVA1472MF | 4700pF, Line Capacitor | 1 |
| C2 △ | ECQU2A104MN | 0.1μF, 250V, Across-the Line Capacitor | 1 |



| Ref. No. | Part No. | Description | P/S |
|---|---|---|---|
| **CAPACITORS** | | | |
| C1 | ECEA0JKA470 | 47μF, 6.3V | 1 |
| C2 | ECBA1H101KB | 100pF | 1 |
| C3 | ECRF1H104ZF | 0.1μF | 1 |
| C4 | ECEA1HKA010 | 1μF, 50V | 1 |
| C5 | ECBA1H101KB | 100pF | 1 |
| C11, 12 | ECEA1CKN100 | 10μF, 16V | 2 |

## PKB PEDAL KEYBOARD CIRCUIT

| Ref. No. | Part No. | Description | P/S |
|---|---|---|---|
| **SWITCHES** | | | |
| S1, 3 | QSTGT001AA | Lever Switch | 2 |
| **RESISTORS** | | | |
| R8, 9 | ERDS2TJ472 | 4.7kΩ | 2 |
| **CAPACITOR** | | | |
| C1 | ECRF1H104ZF | 0.1μF | 1 |

## MKB1 MANUAL KEYBOARD 1 CIRCUIT

| Ref. No. | Part No. | Description | P/S |
|---|---|---|---|
| **INTEGRATED CIRCUITS** | | | |
| IC1 | MSM7U042016 | Gate Array | 1 |
| IC2 | BR93LC46 | 1k bit Programmed EEPROM | 1 |
| **DIODES** | | | |
| D1~88 | MA165 | Diode | 88 |
| **OSCILLATOR** | | | |
| X1 | SVQGA20MX040 | 20MHz, Ceramic Oscillator | 1 |
| **RESISTORS** | | | |
| R1~3 | ERDS2TJ472 | 4.7kΩ | 3 |
| **CAPACITORS** | | | |
| C1 | ECRF1H104ZF | 0.1μF | 1 |
| C2 | ECCW1H471J6 | 470pF | 1 |
| C3, 4 | ECCW1H220J6 | 22pF | 2 |
| C5 | ECKR1E473ZV | 0.047μF | 1 |
| C6, 7 | ECCW1H101J6 | 100pF | 2 |

## MKB2 MANUAL KEYBOARD 2 CIRCUIT

| Ref. No. | Part No. | Description | P/S |
|---|---|---|---|
| **DIODES** | | | |
| D89~176 | MA165 | Diode | 88 |
| **COMPONENT COMBINATION** | | | |
| Z1 | EXBPI8332JM | 3.3kΩ×8 | 1 |

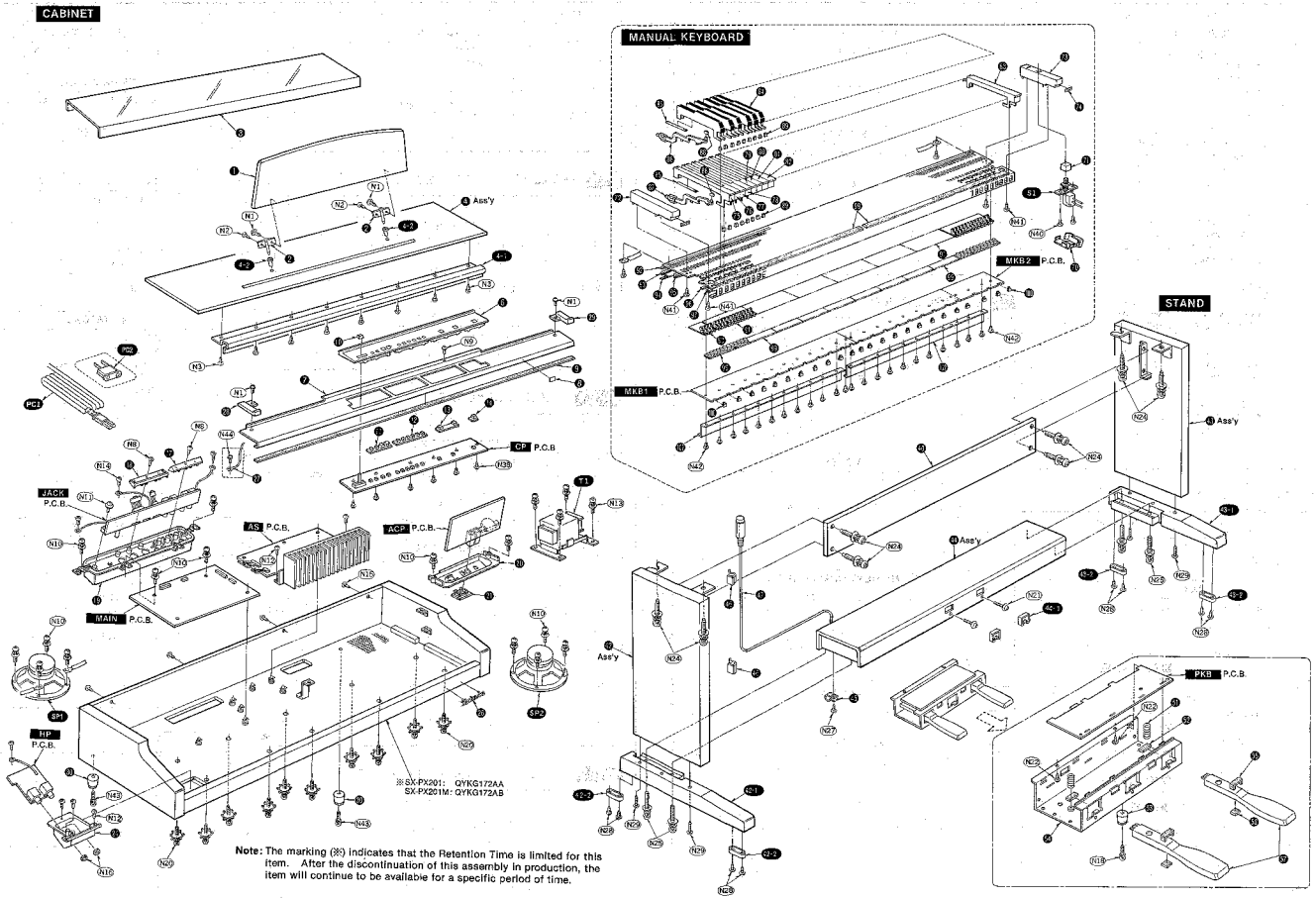
## JACK JACK CIRCUIT

| Ref. No. | Part No. | Description | P/S |
|---|---|---|---|
| **INTEGRATED CIRCUIT** | | | |
| IC1 | SVIGTLP513 | Photo Coupler | 1 |
| **TRANSISTORS** | | | |
| S Q1~3 | 2SA1015-GR | 2SA933STRS (SUB. Part) | 3 |
| **DIODES** | | | |
| D1, 3, 4, 6, 7 | MA165 | Diode | 5 |
| **COILS & LINE FILTERS** | | | |
| L1~5 | QLQGT3T150SA | Coil | 5 |
| **JACKS** | | | |
| JK1 | QJSG007AA | PEDAL IN | 1 |
| JK2~4 | SJSG1370A | MIDI | 3 |
| JK5, 6 | QJJG003AA | AUX IN | 2 |
| JK7, 8 | QJJG003AA | LINE OUT | 2 |
| **RESISTORS** | | | |
| R1, 2 | ERDS2TJ102 | 1kΩ | 2 |
| R4 | ERDS2TJ473 | 47kΩ | 1 |
| R5~7 | ERDS2TJ102 | 1kΩ | 3 |
| R6, 10 | ERDS2TJ680 | 68Ω | 2 |
| R11 | ERDS2TJ104 | 100kΩ | 1 |
| R13 | ERDS2TJ151 | 150Ω | 1 |
| R14 | ERDS2TJ330 | 33Ω | 1 |
| R15 | ERDS2TJ104 | 100kΩ | 1 |
| R16 | ERDS2TJ221 | 220Ω | 1 |
| R17 | ERDS2TJ331 | 330Ω | 1 |
| R18 | ERDS2TJ103 | 10kΩ | 1 |
| R21, 22 | ERDS2TJ152 | 1.5kΩ | 2 |
| R23, 24 | ERDS2TJ102 | 1kΩ | 2 |
| **CAPACITORS** | | | |
| C1~4 | ECRF1H104ZF | 0.1μF | 4 |
| C5, 6 | ECCF1H221J | 220pF | 2 |
| C7 | ECKF1E473ZV | 0.047μF | 1 |
| C8 | ECEA1HKA010 | 1μF, 50V | 1 |
| C11, 12 | ECBA1C222MR | 0.0022μF | 2 |
| C13 | ECRF1H104ZF | 0.1μF | 1 |
| C14, 15 | ECBA1C222MR | 0.0022μF | 2 |
| C16 | ECRF1H104ZF | 0.1μF | 1 |

## ■ WIRING PARTS

| Ref. No. | Part No. | Description | P/S |
|---|---|---|---|
| W1 | QEXGSS16065A | Connector with Wire | 1 |
| W2 | QEXGSS14030A | Connector with Wire | 1 |
| W3 | QEXGSS06080B | Connector with Wire | 1 |
| W4 | QEXGSS05025B | Connector with Wire | 1 |
| W5 | QEXGVH04070B | Connector with Wire | 1 |
| W6 | QEXGVH03106B | Connector with Wire | 1 |

# CABINET PARTS LOCATION


CABINET
MANUAL KEYBOARD
STAND
MKB2 P.C.B.
MKB1 P.C.B.
CP P.C.B
JACK P.C.B.
AS P.C.B.
ACP P.C.B.
MAIN P.C.B.
HP P.C.B.
PKB P.C.B.
※SX-PX201: QYKG172AA
SX-PX201M: QYKG172AB
Note: The marking (※) indicates that the Retention Time is limited for this item. After the discontinuation of this assembly in production, the item will continue to be available for a specific period of time.

# REPLACEMENT PARTS LIST.....Cabinet and Chassis Parts

**Notes:**

1. The marking (RTL) indicates that the Retention Time is limited for this item. After the discontinuation of this assembly in production, the item will continue to be available for a specific period of time. The retension period of availability is dependant on the type of assembly, and in accordance with the laws governing part and product retention.
   After the end of this period, the assembly will no longer be available.
2. ○ mark are new parts.
   Cabinet Colour
   • SX-PX201.....Black • SX-PX201M.....Walnat
3. Important safety notice
   Components identified by ⚠ mark have special characteristics important for safety. When replacing any of these components, use only manufacturer's specified parts.
4. For part No. with area mark, check the area when placing an order.
5. The raw material indicatlon for synthtic resin
   In order to facilitate classification of parts of synthetic resin manufacture and to promote the recycling of natural resources, a raw material symbol for such parts is indicated in the Ref. No./Material column.

## SX-PX201 CABINET & CHASSIS PARTS

| Ref. No. | | Part No. | Description | P/S |
|---|---|---|---|---|
| | | **SWITCH** | | |
| S1 | ⚠ | ESB823V | Power Switch | 1 |
| | | **SPEAKERS** | | |
| SP1, 2 | | EAS14PL93B | 14cm, 8Ω | 2 |
| | | **TRANSFORMER** | | |
| T1 | ⚠ | QTPG1M024A | Power Transformer, Others | 1 |
| T1 | ⚠ | QTPG1M022A | Power Transformer, M MC XM | 1 |
| T1 | ⚠ | QTPG1M025A | Power Transformer, X XR XS XD XT EA | 1 |
| | | **POWER CORD & PLUG** | | |
| PC1 | ⚠ | SJAG65 | Power Cord, Others | 1 |
| PC1 | ⚠ | QJAG013AA | Power Cord, M MC XM | 1 |
| PC1 | ⚠ | QJAG014AA | Power Cord, XR XL | 1 |
| PC1 | ⚠ | VJA0733 | Power Cord, EK XD | 1 |
| PC2 | ⚠ | SJP5213-1 | Attachment Plug, X XT | 1 |
| | | **CABINET PARTS** | | |
| ○ 1 | | QGAG1031AA | Music Rack | 1 |
| 2 | | SBLG230A | Stay | 2 |
| 3 | | QFCG022AA | Keycover, EA X XS XD XT XR XL | 1 |
| 4 | | QKQGA059BA | Top Cover Ass'y | 1 |
| 4-1 | | ┌QGKG0101AA | Ornament | 1 |
| 4-2 | | └QMRG7021AB | Sleeve | 2 |
| ○ 6 | PS | QGPG0054AF | CP Ornament | 1 |
| 7 | | QGPG0055AA | Control Panel | 1 |
| 8 | | QQLG066BA | Initial Label | 1 |
| 9 | | QMFG1107AA | Felt (Red) | 1 |
| 10 | | SBNG7050A | Knob | 1 |
| 11 | | QGUG1191AA | Button | 1 |
| 12 | | QGUG1231AA | Button | 1 |
| 13 | | QGUG1230AA | Button | 1 |
| 14 | | QGUG1229AA | Button | 1 |
| 17 | PS | QMRG7028AC | Bracket | 1 |
| 18 | PS | QMRG7029AC | Bracket | 1 |
| 19 | PS | QGKG0076BB | External Jack Panel | 1 |

## SX-PX201M CABINET & CHASSIS PARTS

| Ref. No. | | Part No. | Description | P/S |
|---|---|---|---|---|
| | | **SWITCH** | | |
| S1 | ⚠ | ESB823V | Power Switch | 1 |
| | | **SPEAKERS** | | |
| SP1, 2 | | EAS14PL93B | 14cm, 8Ω | 2 |
| | | **TRANSFORMER** | | |
| T1 | ⚠ | QTPG1M024A | Power Transformer, Others | 1 |
| T1 | ⚠ | QTPG1M022A | Power Transformer, T1 MC XM | 1 |
| T1 | ⚠ | QTPG1M025A | Power Transformer, X XR XS XD XT EA | 1 |
| | | **POWER CORD & PLUG** | | |
| PC1 | ⚠ | SJAG65 | Power Cord, Others | 1 |
| PC1 | ⚠ | QJAG013AA | Power Cord, M MC XM | 1 |
| PC1 | ⚠ | QJAG014AA | Power Cord, XR XL | 1 |
| PC1 | ⚠ | VJA0733 | Power Cord, EK XD | 1 |
| PC2 | ⚠ | SJP5213-1 | Attachment Plug, X XT | 1 |
| | | **CABINET PARTS** | | |
| ○ 1 | | QGAG1031AB | Music Rack | 1 |
| 2 | | SBLG230B | Stay | 2 |
| 3 | | QFCG022AA | Keycover, EA X XS XD XT XR XL | 1 |
| 4 | | QKQGA059BB | Top Cover Ass'y | 1 |
| ○ 4-1 | | ┌QGKG0101AB | Ornament | 1 |
| 4-2 | | └QMRG7021AA | Sleeve | 2 |
| ○ 6 | PS | QGPG0054AF | CP Ornament | 1 |
| 7 | | QGPG0055AA | Control Panel | 1 |
| 8 | | QQLG066BA | Initial Label | 1 |
| 9 | | QMFG1107AA | Felt (Red) | 1 |
| 10 | | SBNG7050A | Knob | 1 |
| 11 | | QGUG1191AA | Button | 1 |
| 12 | | QGUG1231AA | Button | 1 |
| 13 | | QGUG1230AA | Button | 1 |
| 14 | | QGUG1229AA | Button | 1 |
| 17 | PS | QMRG7028AC | Bracket | 1 |
| 18 | PS | QMRG7029AC | Bracket | 1 |
| 19 | PS | QGKG0076BB | External Jack Panel | 1 |

## SX-PX201

| Ref. No. | | Part No. | Description | P/S |
|---|---|---|---|---|
| 20 | PS | QGKG0096DA | AC Jack Panel, X XR XS XD XT | 1 |
| 20 | PS | QGKG0096CB | AC Jack Panel, Others | 1 |
| 21 | ⚠ PS | SJS9334A | AC Inlet Cover, M MC MW XL XR | 1 |
| 21 | ⚠ PS | SJS9231A | AC Inlet Cover, Others | 1 |
| 24 | | QGKG0080AA | Headphone Jack Case | 1 |
| 26 | | SGBG160B | Badge | 1 |
| 27 | | QEXGRA01011A | Wire, M MC MW EE | 1 |
| 28 | | QMRG7044AA | Keycover Stopper L, EA X XS XD XT XR XL | 1 |
| 29 | | QMRG7045AA | Keycover Stopper R, EA X XS XD XT XR XL | 1 |
| ○ 30 | | QKAG0012AA | Foot | 2 |
| | | **STAND** | | |
| ○ 40 | | QKQGD056AA | Crossboard | 1 |
| ○ 42 | | QKQGB358AA | Left Plank Ass'y | 1 |
| 42-1 | | QKSGB006AA | Leg, Left | 1 |
| 42-2 | | SHRG2130B-K | Foot | 2 |
| ○ 43 | | QKQGB359AA | Right Plank Ass'y | 1 |
| 43-1 | | QKSGB007AA | Leg, Right | 1 |
| 43-2 | | SHRG2130B-K | Foot | 2 |
| ○ 44 | | QKQGM059AA | Pedal Box Ass'y | 1 |
| 44-1 | | QGKG0113AA | Ornament | 2 |
| 45 | | SHRG1230A | Cord Clamper | 1 |
| 46 | | SHRG9620A | Cord Clamper | 2 |
| 47 | | QJLG007AA | Pedal Cord | 1 |
| 51 | | QMBG009AA | Spring | 2 |
| 52 | | QMFG1133AA | Felt | 2 |
| 53 | | QKAG0011AA | Foot | 1 |
| 54 | | QMWG3010BA | Pedal Chassis | 1 |
| 55 | | QMFG1134AA | Felt | 2 |
| 56 | | QMFG1135AA | Felt | 2 |
| 57 | | STBG3120A | Pedal | 2 |
| | | **MANUAL KEYBOARD** | | |
| 70 | PP | SHRG8390A | Cover, Power SW. | 1 |
| 71 | | QGUG1040AA | Button, Power Switch | 1 |
| 72 | PS | QGPG0042AB | End Cover Panel, Left | 1 |
| 73 | PS | QGPG0041BD | End Cover Panel, Right | 1 |
| 74 | | QMFG1104AA | Felt | 2 |
| 75 | AS | QMWG1001AA | White Key (First Octave A Key) | 1 |
| 76 | AS | QMWG1002AA | White Key (B Key) | 8 |
| 77 | AS | QMWG1003AA | White Key (C Key) | 7 |
| 78 | AS | QMWG1004AA | White Key (D Key) | 7 |
| 79 | AS | QMWG1005AA | White Key (E Key) | 7 |
| 80 | AS | QMWG1006AA | White Key (F Key) | 7 |
| 81 | AS | QMWG1007AA | White Key (G Key) | 7 |
| 82 | AS | QMWG1008AA | White Key (A Key) | 7 |
| 83 | AS | QMWG1009AA | White Key (Top Octave C Key) | 1 |
| 84 | | QMWG2001AA | Black Key | 36 |
| 85 | | SUSG534A | Spring | 88 |
| 86 | | QMWG8019CA | Hammer (Black Key) | 36 |
| ○ 87 | | QMWG8017DA | Hammer (White Key) | 52 |
| 88 | | SHGG9121A | Rubber Cap (Hammer) | 88 |
| 89 | PA | QMWG8024BA | Key Guide | 88 |
| 90 | ABS | QMWG8022AA | Fulcurum (4 pcs. on one) | 1 |
| 91 | ABS | QMWG8021AA | Fulcurum (12 pcs. on one) | 7 |
| 92 | | SHRGA9080A | Sponge | 2 |
| 93 | | QMFG1073AA | Felt | 2 |

## SX-PX201M

| Ref. No. | | Part No. | Description | P/S |
|---|---|---|---|---|
| 20 | PS | QGKG0096DA | AC Jack Panel, X XR XS XD XT | 1 |
| 20 | PS | QGKG0096CB | AC Jack Panel, Others | 1 |
| 21 | ⚠ PS | SJS9334A | AC Inlet Cover, M MC MW XL XR | 1 |
| 21 | ⚠ PS | SJS9231A | AC Inlet Cover, Others | 1 |
| 24 | | QGKG0080AA | Headphone Jack Case | 1 |
| 26 | | SGBG160B | Badge | 1 |
| 27 | | QEXGRA01011A | Wire, M MC MW EE | 1 |
| 28 | | QMRG7044AA | Keycover Stopper L, EA X XS XD XT XR XL | 1 |
| 29 | | QMRG7045AA | Keycover Stopper R, EA X XS XD XT XR XL | 1 |
| ○ 30 | | QKAG0012AA | Foot | 2 |
| | | **STAND** | | |
| ○ 40 | | QKQGD056AB | Crossboard | 1 |
| ○ 42 | | QKQGB358AB | Left Plank Ass'y | 1 |
| 42-1 | | QKSGB006AB | Leg, Left | 1 |
| 42-2 | | SHRG2130B-K | Foot | 2 |
| ○ 43 | | QKQGB359AB | Right Plank Ass'y | 1 |
| 43-1 | | QKSGB007AB | Leg, Right | 1 |
| 43-2 | | SHRG2130B-K | Foot | 2 |
| ○ 44 | | QKQGM059AB | Pedal Box Ass'y | 1 |
| 44-1 | | QGKG0113AA | Ornament | 2 |
| 45 | | SHRG1230A | Cord Clamper | 1 |
| 46 | | SHRG9620A | Cord Clamper | 2 |
| 47 | | QJLG007AA | Pedal Cord | 1 |
| 51 | | QMBG009AA | Spring | 2 |
| 52 | | QMFG1133AA | Felt | 2 |
| 53 | | QKAG0011AA | Foot | 1 |
| 54 | | QMWG3010BA | Pedal Chassis | 1 |
| 55 | | QMFG1134AA | Felt | 2 |
| 56 | | QMFG1135AA | Felt | 2 |
| 57 | | STBG3120A | Pedal | 2 |
| | | **MANUAL KEYBOARD** | | |
| 70 | PP | SHRG8390A | Cover, Power SW. | 1 |
| 71 | | QGUG1040AA | Button, Power Switch | 1 |
| 72 | PS | QGPG0042AB | End Cover Panel, Left | 1 |
| 73 | PS | QGPG0041BD | End Cover Panel, Right | 1 |
| 74 | | QMFG1104AA | Felt | 2 |
| 75 | AS | QMWG1001AA | White Key (First Octave A Key) | 1 |
| 76 | AS | QMWG1002AA | White Key (B Key) | 8 |
| 77 | AS | QMWG1003AA | White Key (C Key) | 7 |
| 78 | AS | QMWG1004AA | White Key (D Key) | 7 |
| 79 | AS | QMWG1005AA | White Key (E Key) | 7 |
| 80 | AS | QMWG1006AA | White Key (F Key) | 7 |
| 81 | AS | QMWG1007AA | White Key (G Key) | 7 |
| 82 | AS | QMWG1008AA | White Key (A Key) | 7 |
| 83 | AS | QMWG1009AA | White Key (Top Octave C Key) | 1 |
| 84 | | QMWG2001AA | Black Key | 36 |
| 85 | | SUSG534A | Spring | 88 |
| 86 | | QMWG8019CA | Hammer (Black Key) | 36 |
| ○ 87 | | QMWG8017DA | Hammer (White Key) | 52 |
| 88 | | SHGG9121A | Rubber Cap (Hammer) | 88 |
| 89 | PA | QMWG8024BA | Key Guide | 88 |
| 90 | ABS | QMWG8022AA | Fulcurum (4 pcs. on one) | 1 |
| 91 | ABS | QMWG8021AA | Fulcurum (12 pcs. on one) | 7 |
| 92 | | SHRGA9080A | Sponge | 2 |
| 93 | | QMFG1073AA | Felt | 2 |

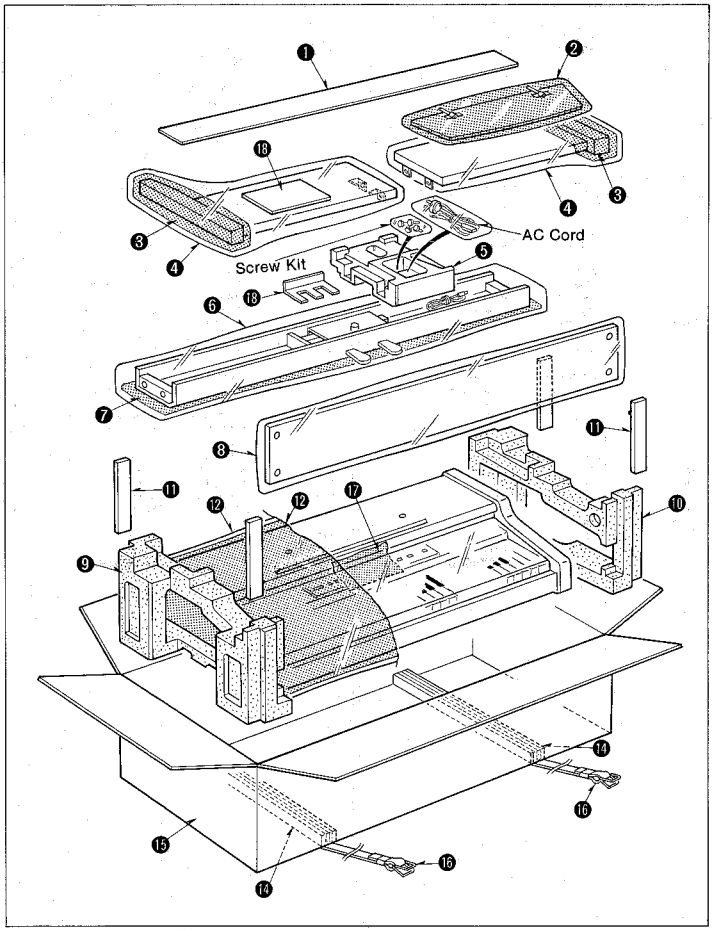
**SX-PX201**

| Ref. No. | Part No. | Description | P/S |
|---|---|---|---|
| 94 | SHSG3461A | Felt | 1 |
| 95 | QMFG1101AA | Felt | 2 |
| 96 | QMFG1061AA | Felt | 2 |
| 97 | QMFG1060AA | Felt | 2 |
| 98 | QMFG1086AA | Felt | 2 |
| 99 | QMWG6006AA | Rubber Switch (8 pcs. on one) | 11 |
| 100 | SHRG9751A | P.C.B. Holder | 24 |
| 101 | QMWG3003BA | Chassis | 1 |
| 102 | SUWG3157A | Angle | 2 |
| | **SCREWS & WASHERS** | | |
| N1 | XTT4+10AFZ | Screw | 4 |
| N2 | XTB3+10AFZ | Screw | 2 |
| N3 | XTT4+10A | Screw | 8 |
| N8 | XTW3+10Q | Screw | 2 |
| N9 | XTW3+10JFZ | Screw | 1 |
| N10 | XYN4+F25 | Screw with Washer | 14 |
| N11 | XTWSG2 | Screw with Washer | 1 |
| N12 | XTB35+12A | Screw | 5 |
| N13 | XYN4+F16 | Screw with Washer | 4 |
| N14 | SNEG2660A | Screw | 3 |
| N15 | XTT4+30AFZ | Screw | 4 |
| N16 | XNS12FZ | Nut | 2 |
| N18 | XTN4+16F | Screw with Washer | 1 |
| N20 | QHDG021AA | Screw with Washer | 10 |
| N21 | XYN4+F16FZ | Screw with Washer | 2 |
| N22 | XTT4+16A | Screw | 2 |
| N24 | QHDG016AB | Screw with Washer | 8 |
| N25 | XYN6+F40 | Screw with Washer | 4 |
| N27 | XTB35+14A | Screw | 1 |
| N28 | XTB4+16A | Screw | 9 |
| N29 | XTT4+25AFZ | Screw | 4 |
| N38 | XTV3+10G | Screw | 6 |
| N40 | XTV3+10C | Screw | 4 |
| N41 | XTB4+12A | Screw | 4 |
| N42 | XTW3+10T | Screw | 24 |
| N43 | XTB35+20A | Screw | 2 |
| N44 | SNEG2660A | Screw, M MC MM EZ | 1 |

**SX-PX201M**

| Ref. No. | Part No. | Description | P/S |
|---|---|---|---|
| 94 | SHSG3461A | Felt | 1 |
| 95 | QMFG1101AA | Felt | 2 |
| 96 | QMFG1061AA | Felt | 2 |
| 97 | QMFG1060AA | Felt | 2 |
| 98 | QMFG1086AA | Felt | 2 |
| 99 | QMWG6006AA | Rubber Switch (8 pcs. on one) | 11 |
| 100 | SHRG9751A | P.C.B. Holder | 24 |
| 101 | QMWG3003BA | Chassis | 1 |
| 102 | SUWG3157A | Angle | 2 |
| | **SCREWS & WASHERS** | | |
| N1 | XTT4+10AFZ | Screw | 4 |
| N2 | XTB3+10AFZ | Screw | 2 |
| N3 | XTT4+10A | Screw | 8 |
| N8 | XTW3+10Q | Screw | 2 |
| N9 | XTW3+10JFZ | Screw | 1 |
| N10 | XYN4+F25 | Screw with Washer | 14 |
| N11 | XTWSG2 | Screw with Washer | 1 |
| N12 | XTB35+12A | Screw | 5 |
| N13 | XYN4+F16 | Screw with Washer | 4 |
| N14 | SNEG2660A | Screw | 3 |
| N15 | XTT4+30AFVC | Screw | 4 |
| N16 | XNS12FZ | Nut | 2 |
| N18 | XTN4+16F | Screw with Washer | 1 |
| N20 | QHDG021AA | Screw with Washer | 10 |
| N21 | XYN4+F16FZ | Screw with Washer | 2 |
| N22 | XTT4+16A | Screw | 2 |
| N24 | QHDG016AA | Screw with Washer | 8 |
| N25 | XYN6+F40 | Screw with Washer | 4 |
| N27 | XTB35+14A | Screw | 1 |
| N28 | XTB4+16A | Screw | 9 |
| N29 | XTT4+25AFZ | Screw | 4 |
| N38 | XTV3+10G | Screw | 6 |
| N40 | XTV3+10C | Screw | 4 |
| N41 | XTB4+12A | Screw | 4 |
| N42 | XTW3+10T | Screw | 24 |
| N43 | XTB35+20A | Screw | 2 |
| N44 | SNEG2660A | Screw, M MC MM EZ | 1 |

# PACKING



## ■ PACKING PARTS

| Ref. No. | | Part No. | Description | P/S |
|---|---|---|---|---|
| **PACKING PARTS** | | | | |
| 1 | | QPNG0358AA | Top Cardboard | 1 |
| 2 | PE | SPHG1490A | Protection Sheet | 1 |
| 3 | PE | SPHG1730A | Protection Sheet | 2 |
| 4 | PE | QPFG011AA | Polyethylene Bag | 1 |
| 5 | PS | QPNG0357BA | Pad | 1 |
| 6 | PE | QPFG026AA | Polyethylene Bag | 1 |
| 7 | PE | QPHG020AA | Protection Sheet | 1 |
| 8 | PE | QPHG033AA | Polyethylene Bag | 1 |
| 9 | PE | QPNG0355AA | Pad | 1 |
| 10 | PS | QPNG0356AA | Pad | 1 |
| 11 | | QPQG023AA | Prop | 4 |
| 12 | PE | QPHG028AA | Protection Sheet | 1 |
| 13 | PE | SPHG2200A | Polyethylene Bag | 1 |
| 14 | | QPNG0380AA | Pad | 2 |
| ○ 15 | | QPGG0232AB | Carton, SX-PX201 | 1 |
| ○ 15 | | QPGG0232AC | Carton, SX-PX201M | 1 |
| 16 | | SPSG40A | Band | 2 |
| 17 | | QPHG018AA | Protection Sheet, EA XS XD JY XG XL | 1 |
| 18 | PS | QPNG0404AA | Pad | 1 |
| **OPERATING INSTRUCTION MANUAL** | | | | |
| ○ 19 | | QQFGPX201AA | Operating instruction manual, M | 1 |
| 19-1 | | QQTG0300A | ENGLISH | 1 |
| ○ 19 | | QQFGPX201BA | Operating instruction manual, EL | 1 |
| ○ 19-1 | | QQTG0299A | DANSK | 1 |
| 19-2 | | QQTG0301A | ENGLISH, FRANCAIS, ESPANOL, ITALIANO, NERDERLANDS, 中文 | 1 |
| ○ 19 | | QQFGPX201CA | Operating instruction manual, Others | 1 |
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